Telephony.

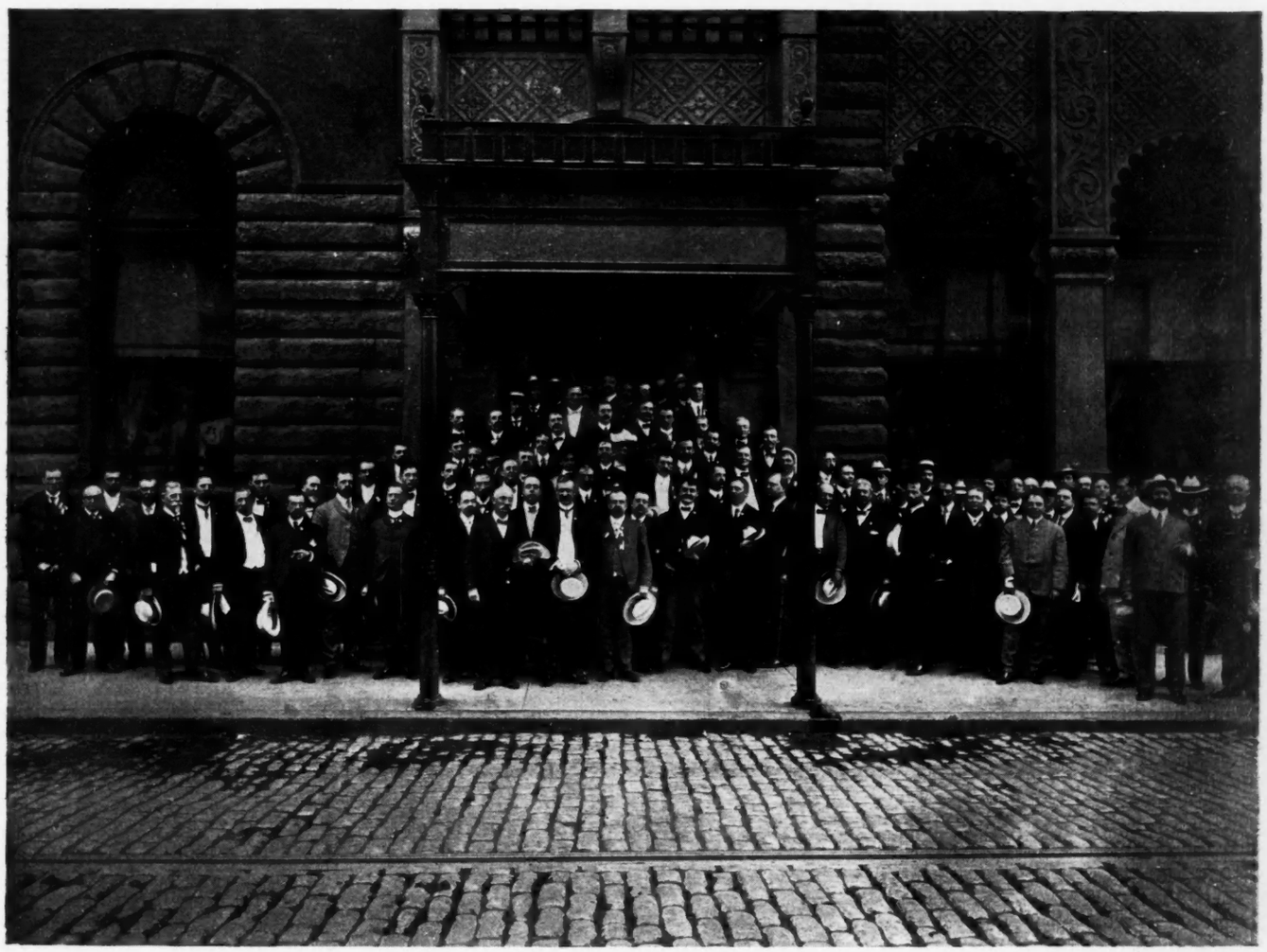
AN ILLUSTRATED MONTHLY TELEPHONE JOURNAL

VOL. IV. CHICAGO, JULY, 1902. NO. 1.

The National Convention.

The city of Philadelphia was the meeting place of the sixth annual convention of the Independent Telephone Association of the United States, which was held at the Hotel Walton on June 24, 25 and 26. Perfect weather marked the days of the convention session and contributed very largely to the enjoyment of the delegates and visitors. The convention sessions were not so largely attended as at former meetings of the association, although the total registry was large, a fact probably due to the reason that the many attractions and points of historical interest in and about Philadelphia proved too alluring to the visitors. The location of exhibits at the Keystone Telephone building, about a mile from convention headquarters, also served to decrease the actual convention attendance.

The knowledge that full and complete reports of convention proceedings would appear in the telephone press doubtless also contributed to reduce the number in the convention hall.



DELEGATES TO NATIONAL TELEPHONE CONVENTION, PHILADELPHIA.

Practically all of the important telephone manufacturing and supply interests in the East were represented at the convention and large numbers of western manufacturers were also in attendance, a special car coming from Chi-

cago. Owing to the location of the convention at Philadelphia the attendance of delegates representing operating companies was necessarily almost entirely limited to those from Pennsylvania and neignboring eastern states, although there were representatives present from Virginia, Ohio, Missouri, Indiana, Kentucky Minnesota, South Carolina, Illinois, Michigan, Kansas, Louisiana, Tennessee and North Carolina.

The first session of the convention was called to order Tuesday morning by President Thomas, who introduced to the convention Mayor Ashbridge of Philadelphia, who addressed the convention as follows:

THE MAYOR'S ADDRESS OF WELCOME.

I do not presume that Mr. Foerderer had any ulterior motive in making an unkind reference to something which I did some two years ago, and which has practically brought down upon my head, from that day to the present time, a very great deal of not only criticism, but of abuse in introducing to Philadelphia an Independent telephone corporation, destined to give better service, and more efficient service, at better rates, than had ever existed.

It has, however, had one result: Better service is obtainable now from the other company, and very much cheaper rates are given subscribers than ever would have been made if there had not been a competitive company.

I am a great believer in competition in all things, and in that belief I signed the so-called "Keystone telephone bill," for which, in the parlance of the railroad man, I have had the "red board" against me ever since. But it matters but little if one feels that he is doing his duty and is benefiting the community in giving better service at cheaper rates; and anything that will materially benefit a community or a people or a business I count it the duty of those in authority to carry out and execute.

I therefore have no apologies to express for signing a bill giving to the people of this city a franchise through a company that has become such a factor in the commercial life of the city.

Telephones are no longer experimental, but are practical useful things that enter into the daily life of all people, in all conditions of life—the physician and the lawyer, the merchant and the manufacturer; and into the home life—our domestic world—it enters so largely, that we welcome all competition that has a tendency to extend its usefulness.

I am quite sure that I am glad to-day to be here to welcome you—men of the Independent telephone business—who have had the moral courage and the intellectual development to chance your money in investments in a business in competition with a great monopoly.

I trust your assembly and convention to-day and in the days that follow may be fruitful and beneficial in the still further development of the Independent lines of telephone growth, and that you may prove a protection and benefit to every community in which your companies are organized and work.

We are glad at all times in Philadelphia to meet people from other states and other localities, and to exchange and interchange with them the best that is for the commercial interest and the development of our country. This city is noted for its hospitality, its liberality, its cordial greetings to all people, its humanitarianism, the morality of the community, the intelligence of its people and all things that enter into and have made this country great and honored as it is. We claim, with a very great deal of pride, that the high intelligence of our people and the development of the genius of our people, through the splendid educational institutions, have helped to make this country honored and distinguished all over the world.

We are glad indeed—let me repeat—to have you here in our midst, that you may commune and exchange thoughts and ideas with those connected with our organizations in this city—whether it be in telephone or other directions—and so increase the commercial benefit and the manufacturing genius of our nation. The age is one of progress—onward, constant, upward—and we welcome all people, even those who come in active competition with us—who are interested in the great things that benefit us and themselves as well.

You are to be commended—let me repeat—for your moral courage in entering into competition with what was one of the great monopolies and held this country by the throat, so that no one else dared to enter into the territory forbidden by its edicts. "In union there is strength," and by your combination and organization you have been able to successfully combat those people who tried to crush you out of existence.

I am not antagonistic to the Bell company; on the other hand, I have warm personal relations with many of the officers of the company whom I esteem very highly as men. But this country is too great and the interests of its people are too great for one man or one interest or one concern to monopolize all the good things.

I hope your sessions may be fruitful and beneficial, and that when you return to your homes it may be with pleasant thoughts and recollections of the hospitality of the city of Philadelphia. A great many conventions come here and many bring ladies. I wish to say—without speaking disparagingly of the cities from which you have come—that so perfect are our police regulations in this city that the ladies—our mothers, wives and sisters and daughters—can traverse every portion of the city without any fear of molestation.

We have many things here to show you, and I have no doubt the local committee in this city will show to you many points of interest,—our historical buildings (from whence this country sprang), our park, our suburbs, and many points that will be a pleasure to you. If you are not able to see them all, I hope that you may be able to do so at some future time, when you visit the city for other purposes than that of holding a telephone convention and stimulate the gentlemen who are interested in the local company, which has the best telephone plant and the best underground conduit system on the American continent. The hazardous risk of business has been taken by these gentlemen, and, from the manner in which they are conducting their service, it will probably be many years before they will see much profit.

You may read in our newspapers while you are here how trees have been uprooted, streets torn up, and all that sort of thing. Well, only treat it as it deserves to be treated—that it is written for a purpose. I presume that the words I say now may be taken down, and you need not be surprised if scarce headlines greet you to-morrow morning in some of the journals of this great city. I believe in American liberty, in freedom of thought and freedom of speech,—yielding not to any man the keeping of my conscience.

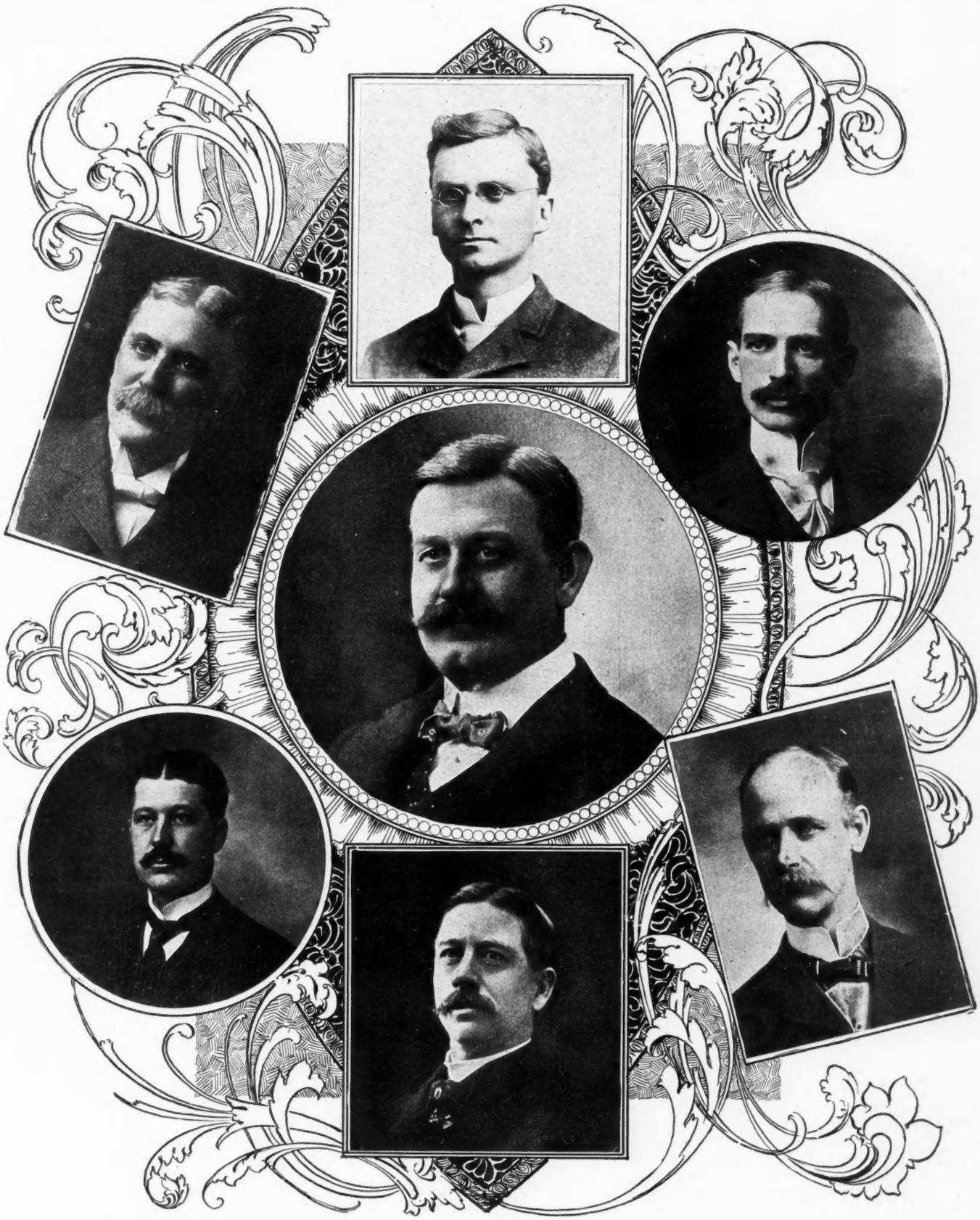
Again I welcome you, gentlemen, cordially and heartily, to the "City of Brotherly Love,"—beneficial, patriotic, loyal and devoted to country and to union—always ready to give a helping hand to every honest business man, mechanic, and men of whatsoever vocation in life.

Mayor Ashbridge was liberally applauded at the conclusion of his address, to wnich Hon. S. P. Sheerin of Indianapolis responded in behalf of the convention. Mr. Sheerin said:

SECRETARY SHEERIN'S RESPONSE.

On behalf of the Independent Telephone Association of the United States, I thank you for your most cordial welcome to this "City of Brotherly Love."

Our organization and the interests for which we stand, are represented in every state in the Union. Our people



HUGH DOUGHERTY, 1st vice pres.
CHAS. E. WILSON, 1st asst sec.

J. B. WARE, sec. and treas.
JAMES M. THOMAS, pres.
C. E. STINSON, 2nd vice pres.

T. B. LEE, 3rd asst. sec.
W. H. DURIN, 3rd vice pres.

OFFICERS INDEPENDENT TELEPHONE ASSOCIATION OF THE UNITED STATES.

are about up to the average of American citizenship, in morality and intelligence.

We are very much above the average in our fighting qualities. This, Mr. Mayor, is not because we were naturally better fighters than other people, but because—like the fathers who signed the Declaration of Independence, in this good city, more than a century and a quarter ago—our opportunities for fighting have been excellent.

We are, one and all, anti-monopolists. This is not only a principle with us, but a business and pursuit, as well. We, however, ask nothing that we are not willing to give.

We come nearer to the hearts and homes of the people than any other public utility. The good housewife, who only patronizes a railroad or a steamboat once in a year, wants to talk several times a day. We are facilitators of conversation, aiders in the dispatch of business, and great helps to the protection of life and property.

When we were invited to come to Philadelphia, we agreed, as one man, to come. We believe, Mr. Mayor, that everyone should come, at least once in a lifetime, to the "cradle of liberty" for inspiration.

We will try to deport ourselves as becometh good citizens while we stay. Our President, of course, will instruct the delegates that the freedom of the city, which you have so generously offered, does not mean freedom to walk off with the "Liberty Bell," or any other "belle" without the consent of the proper parties.

We know that we shall find many things here to interest us. We feel entirely satisfied that we shall carry away with us many pleasant memories of Philadelphia and her people. Our sincere hope is that we may be able to leave behind us pleasant memories of ourselves.

At the conclusion of Mr. Sheerin's address Mayor Ashbridge left the convention hall and was again heartily applauded.

President Thomas delivered his annual address, concluding the morning session.

ANNUAL ADDRESS OF PRESIDENT THOMAS.

In the annual report of the president of the American Telephone & Telegraph Company, under date of Dec. 31, 1901, page 8, we find the following:

"Competition from telephone companies not associated with the company has existed for several years and is likely to continue in some places for some time to come. While it has in some places affected the licensees of this company disadvantageously by reducing, for a time at least, the number of their subscribers and forcing them to meet competitve rates that are not based upon a proper recognition of the cost of doing business or an adequate appreciation of the amount that should be set aside from earnings for maintenance, reconstruction and depreciation, the consequences of the competition to the business as a whole have not been of serious moment. The public in each community will determine for itself whether it is for its advantage that there should be two telephone exchanges serving one body of people. It would seem as if but one conclusion on this point was possible."

We believe a little closer examination of the subject would have caused the report to say that these low rates are made in the hope of destroying competition. In almost every instance, instead of meeting competitive rates they have offered ruinous rates, and so far have failed to destroy competition. So that the public so far has not determined whether there shall be two exchanges, except in some instances where the patronage has been withdrawn from the Bell exchange and the same has been closed. The public desires that competition exist in all lines of business, but we do not believe in ruinous competitive rates. And we do not believe as a general rule independent rates, as they have been established by the majority of companies, are too low. On the other hand, they show good business profit.

We agree with Mr. Fish's statements that "competition has existed for several years and is likely to continue in some places for some time to come and has affected the license companies disadvantageously." We also agree with his statement that the consequences of competition to the business as a whole have not been of serious moment. On the other hand, we believe most sincerely that competition has done more for the telephone business than was accomplished the entire period before competition entered the field, and cite you as a proof of that fact, the last annual report of the president of the American Telephone & Telegraph Company. The growth of the business since that time has been marvelous, while the character of service has been greatly improved.

Our object in this address shall be to frankly, fairly and broadly present the telephone business as it exists to-day, to insist upon rights, to discover wrongs, and, if possible, to be of some service to the many interests throughout the country; to point out a way of eliminating dangers to capital which come through mistaken promotion and ruinous rates. We know that capital is needed to carry on this great enterprise which has been given such great impetus through competition. We desire to assure capital that with proper precautions there is no safer investment. We shall, therefore, begin with rules governing real-estate investments and try to apply them to this business as a guide to safe, permanent investment.

The architect who plans well knows every detail of the structure necessary for permanency and harmony before handing the drawings and specifications to the builder. It is quite necessary that the builder fully comprehend the plans and know every detail of the structure as conceived by the architect, and apply to this his own knowledge of how to build well without waste. These two men are essential to the interests of the capitalist who seeks a permanent investment.

But before the architect is selected it is very essential that the land be purchased at a fair, reasonable price, therefore good judgment must be used in the selection of the agent to make the purchase. Then, too, the capitalist must have money enough to fully complete his new property without subjecting himself to usurious charges. With all these essentials properly combined, the new enterprise is a good business venture from every standpoint.

It pays the capitalist because it is a good investment, the agent, architect and builder because it not only pays well for present labor, but because they have proven competent and faithful, provides new employment in the future. This view of making good, permanent investments in real estate, however, applies only to the older communities. It does not suit in all its details the pioneer, for he in his new country desires only to take care of his present wants until he can determine the kind of structure most valuable as a permanent investment.

The building of telephone properties has not been known to man very many years. It is fast passing out of the pioneer stage, though no telephone property has ever yet been completed. But now men who are giving close study to this great and important business believe that the time has come when we should look to the essentials from the investment standpoint.

This business requires more capital than is to-day at the command of the people who are at work in the building up of telephone properties, a stage that is always reached in the building up of great enterprises.

Like all who work in a common business, we should, in view of this fact, give earnest consideration to the best means of relieving the situation. We have in our meeting to-day enough men to invest, during the present year, more than was invested the first ten years of the use of the telephone. Local telephone investments are at present limited to the influence of the crowd which undertakes the enter-

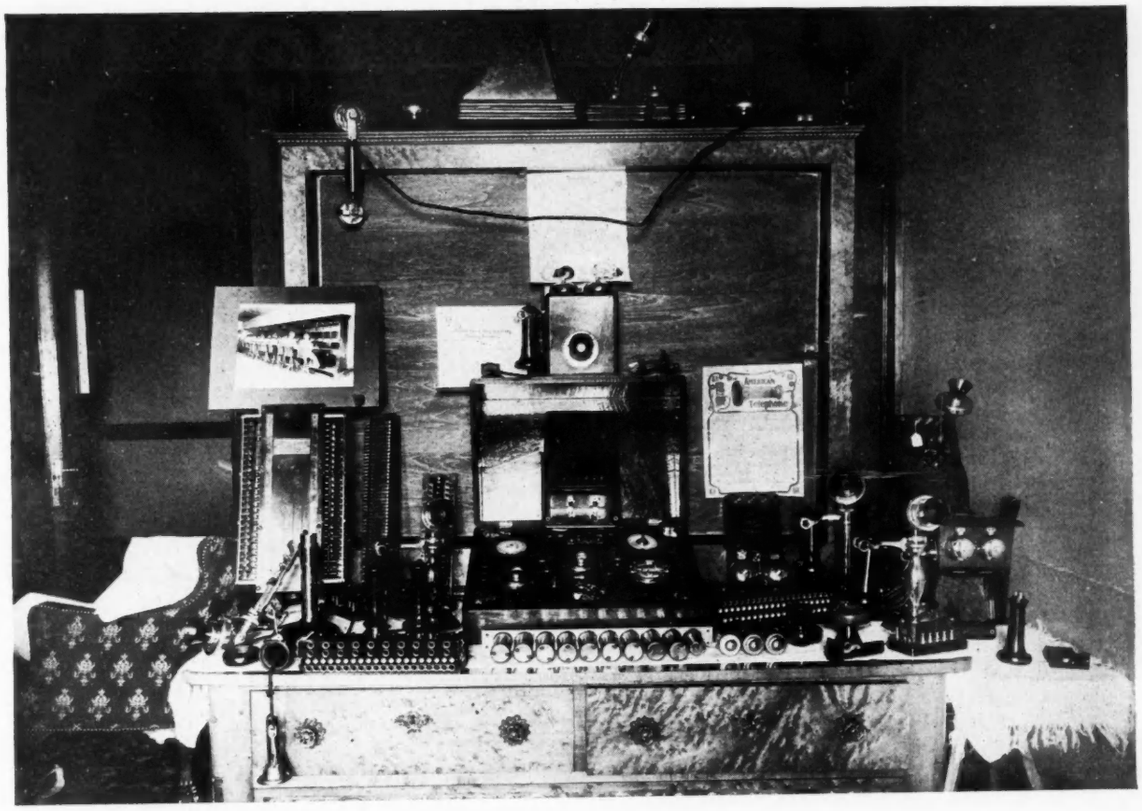


EXHIBIT AMERICAN ELECTRIC TELEPHONE COMPANY, PHILADELPHIA CONVENTION.

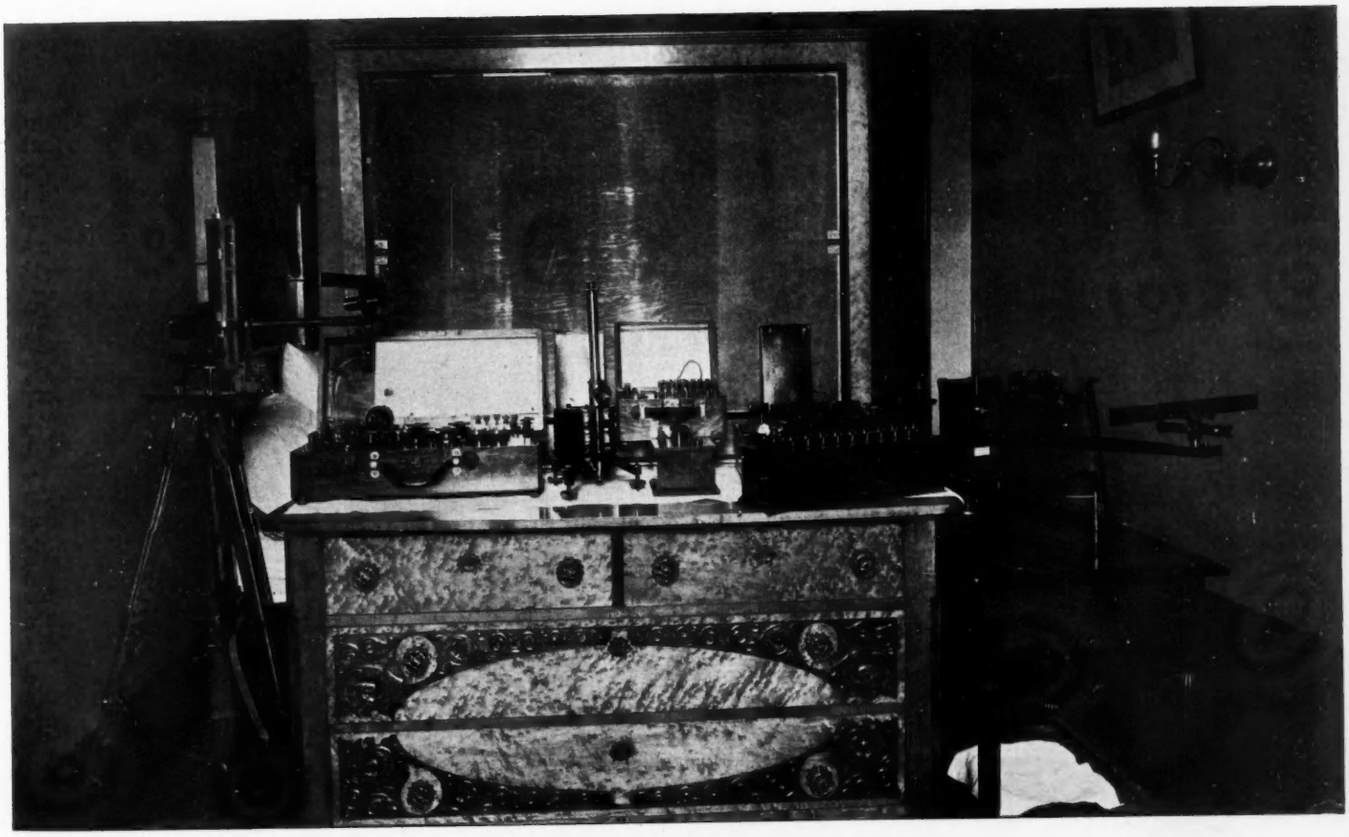


EXHIBIT JAMES G. BIDDLE, PHILADELPHIA CONVENTION.

prise, retarded by all other influences that are seeking money for investment in other enterprises, plus the influence of the Bell company working through many of the financial institutions of the country.

The general money markets have not yet been opened up to the business. Large enterprises have been compelled to pay heavy tribute to the underwriter. There are some instances where the underwriters' profits have very greatly embarrassed the enterprise, and others where this is sure to come in time.

If we have reached the period of building permanent investments (which we believe we have), then we must consider the best ways and means of building so as to be attractive to capital.

Surely no one who has studied the subject will deny that the prospect for the use of the telephone in the future is greater than it has been in the past; that the demand for its use exceeds the ability of the companies to supply it.

The thing itself is necessary to the present methods of social and business economy.

It takes uttered sounds—God's method of conveying intelligence—and sends it over long distances, so that it is no longer essential that parties who desire to talk shall be compelled to pick up their cumbersome bodies and carry them at great expense. When men no longer talk, then the telephone will be placed in museums with the mummy and other dead things; and capital should remember that woman will use it, even after man has quit talking. You know, she always has the last word.

If the thing itself is of a permanent nature, like good building ground, by employing the proper agent, architect, builder and operator the telephone investor will have a desirable permanent investment, such as is not only sought in local but general money markets. The capitalist is always ready to invest in something sure and permanent, even though the returns are not very large.

This being true, then, somewhere in this field of investment there is something wrong or else we could reach the money centers as well as local financial resources.

Suppose we walk along together and make a very close examination, to see if we can discover the reason or reasons, as the case may be, why sufficient capital has not invested in a business with every promise of permanency; especially since it has become a necessity with an unlimited demand. If permanent necessities so in demand that the people cannot be supplied promptly do not return to capital its just reward, then there is something wrong with the management of the business. As we are going upon a search of this kind, suppose we begin, which in this case is with the inventor.

Of course, we cannot look into every detail or consider disputed rights among inventors. We start here simply after looking at an invention which is not surpassed in point of profound discovery and great use, since the beginning of the age of man. If we had comprehended its great value at the time of its discovery as we now do capital would have undertaken to place it in the hands of the people in a way that would have spread its use more rapidly and more economically than was done in its earlier stages of development. But as all men are made of mud and slow of comprehension, we must, as with everything else, take its slow stages of development as disclosing its weak and strong points.

It was a mere toy and plaything at first, something that was novel and entertaining. The original investors did not risk very much. They used the usual methods of convincing the inventor that there was very little value to the thing, and he, in order to make some money, must sell cheap; they would take all the risk of perfecting and placing the thing in public use because they loved him so. That was in the days when men were selfish before the millennium had dawned.

Some very selfish contracts were made, which aimed to be perpetual and exclusive. Through all the different stages of the growth of the American Bell organization and the preceding organizations, we find the work of the skillful hand of monopoly. These contracts demanded unreasonable tribute to the small capital which represented the parent company. It was the working out of a scheme which demanded for a small amount of capital unreasonable tribute from a large number of people representing a large amount of capital.

In other words, the very small amount of capital employed in purchasing the invention and bringing it to perfection was to always receive reward from the people themselves, through these contracts, after the right under our patent laws had expired, by always compelling the hundreds of millions of dollars invested in the manufacture of telephones and switchboards and the building of exchanges and systems throughout the land, to pay a royalty or rental. This is clearly against the principles of our moral and civil laws and cannot be justified, and must fail in its purpose. We find here, perhaps, the greatest cause for the failure of capital to invest in this field so rapidly as it should.

Broad minded men are at work on the solution of this problem and everything necessary to give to the people telephone service at a fair price and give adequate reward to capital and labor will soon be solved. The price through competition having in most instances been reduced to the minimum, something must be done to preserve the capital already invested and induce new capital to come into the enterprise.

People should never uphold ruinous competition in anything, any more than they should uphold ruinous monopoly. We must always be fair and just to both sides of a controversy. The user of the telephone must not be allowed to enjoy its great privileges at the expnse of the man who has invested his money. We only want such competition as will cause the capitalist to be fair; and not a competition that will give advantage to the user.

But as we walk together for the purpose of discovery, let us be able to distinguish so that we may be able at the proper time to eliminate. The capitalist knows that in all instances the real capital invested is not represented by the amount of capital stock issued, and not always by the showing on the property ledger. He also knows that a prospectus has never gained the standard given our good book, the Bible. He understands the ways and wiles of the promoter and knows the rosy hue may be a little water color, which the first dampening effect will destroy. He has learned not to check on the hundreds of thousands that the promoter has, in his mind, made him while talking of his scheme. He knows a business proposition when he hears it, and must always be dealt with fairly,—because he has found that is the surest way to do business.

While we stop to differentiate, we must not forget that all so-called capitalists are not capitalists, and that all so-called promoters are not promoters. The one who is not a promoter will do anything for money and the one who is not a capitalist will steal all your time without compensation. Both should be avoided by those who would succeed. The would-be capitalist and the should-not-be promoter should always be placed together.

In this consideration we should always bear in mind that the agent, architect, builder, operator and capitalist are essential to good business investments of great value to a community. Because men pretend to be in either class and sometimes deceive, is not a sufficient reason for failure in so great an enterprise as the telephone business. If overcapitalization through promoters profits and the payment of tribute is a reason for the hesitation of capital to invest, let's seek some way to eliminate it. If competition has made ruinous rates, let's find some way to restore them.

If the people are to be given the benefit of reasonable rates, and the capitalist of a fair return on his investment.

EXHIBIT HOLTZER-CABOT ELECTRIC COMPANY, PHILADELPHIA CONVENTION.

EXHIBIT KELLOGG SWITCHBOARD & SUPPLY COMPANY, PHILADELPHIA CONVENTION.

the individual, the Municipal, County and State organizations must not be selfish and unfair. The present tendency to hold the corporation up does not benefit the people, and is not pleasing to capital, and is a dangerous weed which seems just now to flourish.

The public official should be confined to the reward contracted for when he agreed to accept its trust, and should have no superior right over his neighbor in dealing with corporation franchises and rights of way should be granted on fair and equitable lines and should be considered in accordance with the great benefit the new enterprise will bring the community.

The telephone should always be considered as one of the most beneficial enterprises, and should under proper police restrictions be welcomed to a city, county or state, without burdens which will affect the rights of the user, or the capitalist. The United States in consideration of its general usefulness should do everything necessary to reduce the obstacles in the way of establishing full, complete service at reasonable prices. It should do more, perhaps, than to remove obstacles, but that we will not consider.

We find upon a careful study of this proposition many difficulties. We believe no other business presents quite as many. We find that through the slow stages of development a long period of pioneering that has cost a great deal of money, which practically has had to be replaced by installing more efficient apparatus and construction every few years. So that the capital invested has grown to very large proportions; where much more capital is necessary to be placed in the business in order to take care of the demand for service within the next year or so.

While this on first thought seems discouraging to the promoter, we must remember that the same is true of every business of a general nature that has had to be developed through invention.

We should bear in mind that through this pioneering we have educated the people to use the telephone, and that they are educated for all time in this method of communication. That while this has been accomplished, we have also been educating agents, architects, builders and operators to handle the business more economically; while the inventors are constantly giving us new facilities for more economically handling the business. There is no excuse now for poor construction, inferior apparatus, ruinous rates, over-capitalization, incompetent employes, or any other thing that would bring danger to the investor. All we now need is to frankly confess our errors in the past and proceed as business men in all lines proceed, to properly take care of the capital invested in the business, using modern methods and economics in working out the plan. Let us recognize one another's rights, and work in harmony to one common end, to place the business upon a firm financial footing.

The Independent telephone association has from its birth taken a stand of recognizing every man's rights. And the work of the officers and committees of the association has always been free from prejudices or preference, and has been conducted upon broad and just principles. The banner of this association has never been trailed in the dust.

We find an unbiased opinion in an editorial in the "Electrical World and Engineer" of June 14th, which we think is appropriate to be read on this occasion:

"Now that the announcement has been made of the Independent telephone convention to be held in Philadelphia in the last week of this month, it will be seen to what extent interest continues in that annual affair, for we can hardly believe that the recent local or Inter-state meeting at Chicago has had any serious effect in deterring from attendance those who would go. At any rate we hope such is not the case. If Independent telephony is to be a real force in the country—and a large opportunity exists for it in many ways—its practical exponents must get together. We know of no progressive art in which the practitioners do not from time to time get together and in such an industry as the telephonic it is peculiarly desirable. The Independents are scattered, are often without accumulated experience, are not well acquainted with each other, and greatly need the interchange of ideas and sympathies. The recent electric light convention at Cincinnati showed how even after nearly 20 years, there remains work for the National Electric Light Association to do; and curiously enough in the early days that body was regarded by the Edison companies very much as the Bell companies now regard the Independents—intruders and outsiders not to be associated with. But we think we can imagine a time in the near future when, having justified itself by good work, the Independent Telephone Association can become a powerful influence for the technical advance of telephony, and when Bell telephone men will readily and gladly belong to it, not because it is 'Independent,' but because it is the national organization of operating telephone companies. This may not happen, but if it did, it would not be without precedent. What is necessary, however, above all things, is that not the telephone manufacturers alone, nor the supply men should get together in convention, but that the managers of the local companies should all turn out and benefit by conference."

We feel that on account of the standing that this association has gained as the representative of the Independent telephone companies of the United States, that it must be the advanced thinker and the advanced worker in this field; that its policy should be ever onward to work out difficult telephone propositions on lines that will be both pleasing to capital and to the people. That its object should not be to destroy, but to build up. That it should not be governed by prejudice or preference, but by justice and fair dealing. We hope and believe that this will be its future course.

The remainder of the day was devoted to a social good time, the feature being a tally-ho ride up the Wissahickon, through beautiful Fairmont Park. A dozen coaches were filled with delegates and visitors, among whom was a large number of ladies. A stop was made at the Indian Rock Inn, the party returning to the hotel in time for dinner. The evening was devoted to sightseeing and renewing acquaintances.

On Wednesday morning the second session of the convention was called to order and President Thomas introduced Professor W. E. Goldsborough, consulting electrical engineer of the Louisiana Purchase Exposition, to be held in St. Louis in 1904. Professor Goldsborough predicted for the St. Louis exposition the greatest success, and said that it would surpass any exposition ever held in the world. It would cost $40,000,000 and would comprise exhibits covering practically every known art or industry. The electrical building will cover the space of almost 400,000 square feet, and is to be furnished with all the power necessary to show electrical apparatus in actual use. Professor Goldsborough urged that telephone exhibits be made working exhibits as much as possible, in order that its practical workings might be fully understood by the people at large. In behalf of the exposition he extended an invitation to the association to visit St. Louis in 1904.

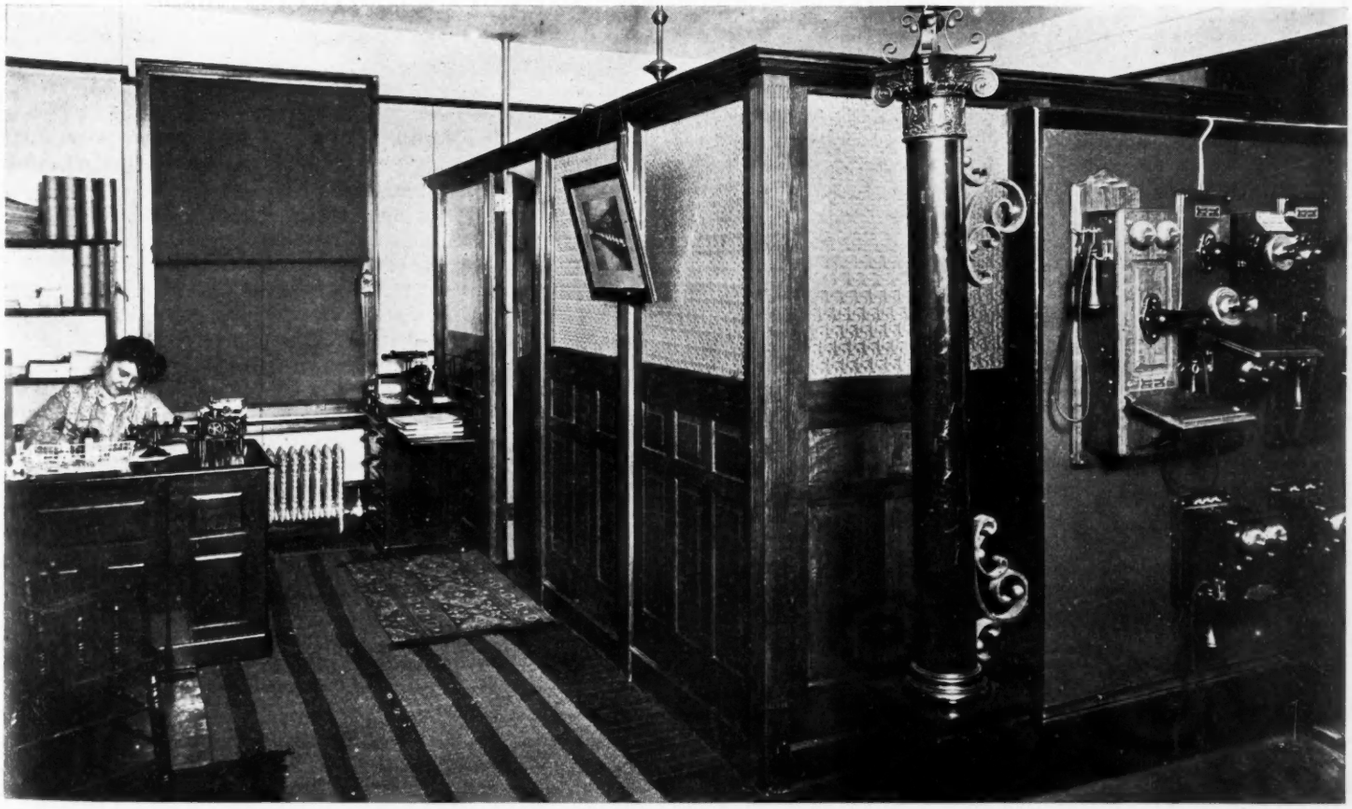
A resolution to co-operate with the exposition was unanimously carried, the question of fixing St. Louis as the meeting place of the association being left for future action.

Mr. L. A. Goudy of the Northeastern Telephone Company of Portland, Maine, then read a paper on the Telephone Situation in the Northeast.

MR. GOUDY'S PAPER.

I was pleased to learn that the committee on programme were apparently students of the Bible. It is an indication that the leaders in the development of the great independent telephone movement are inspired by a high sense of responsibility to the people and the cause of an hon-

MANAGER; BRANCH OFFICE KELLOGG SWITCHBOARD & SUPPLY COMPANY, PHILADELPHIA.



BRANCH OFFICE KELLOGG SWITCHBOARD & SUPPLY COMPANY, PHILADELPHIA.

est public service issue. Acute thinkers and men of sound judgment, they have followed the scriptural rule through their instructions to the programme committe that "the last shall be first and the first shall be last." And I am the victim of their wisdom.

They are also evidently politicians of experience. You all know that it is customary in political meetings to introduce the light weights first, reserving the "big guns" for the closing—a wise rule, as it holds the delegates for the last good things of the "feast of reason and the flow of soul" which the committee on entertainment have seductively arranged to "top off" with the attractions of Atlantic City for dessert.

With such a prospective and enspiriting end-up, gentlemen, you can endure in patience for a while the "dry member from the prohibition state," as the herald from the Northeast, preceding that valiant and aggressive representative from Massachusetts (the birthplace of telephony), Spofford, of the People's Telephone Company, who can, and undoubtedly will, give even the breezy gentlemen from the great West "points" on the difficulties accompanying installation of the competition which they know but little about on the broad prairies of the western section of the country, with their spirit of patriotism and protection of public rights. He (Spofford) has met the lion in his den and did not fear him. He is the little David of New England who took up the sling of competition against the old giant of Monopoly in Massachusetts—the "modern Goliath" who endeavor to drive all representatives of righteousness from the field.

But to my subject, "The Telephone Situation in the Northeast." New England has a comparatively dense population, particularly in Massachusetts, Rhode Island and Connecticut, and yet, with all of their great wealth and material prosperity, but a very small per centage of their people are subscribers to the telephone. The same rule prevails in Vermont, New Hampshire and the state of Maine. In the latter (my home state) less than 1½ per cent of the population are subscribers to telephone service, with even a lower percentage in New Hampshire and Vermont. Why? Because the licenses of the Bell company have demanded such extraordinary rates, local and long distance, for (as a rule) exceedingly poor service, confined principally to the cities and thickly populated centers. The farmers and rural communities have been ignored or compelled to pay such extortionate rates for limited and defective service that there has been but little use of the telephone in the country districts. Recently, however, through the aggressive and persistent efforts of the Northeastern Telephone Company, particularly in conjunction with local enterprise of citizens of village communities, a change has taken place and a spirit of aggressiveness is manifesting itself which is putting the monopoly (the New England Telephone & Telegraph Company) on its metal. The lines quoted, I think, by your distinguished secretary in a paper at a previous annual convention of this association:

"When the devil was sick, the devil a monk would be;
When the devil was well, the devil a monk was he,"

have applied to the Bell Telephone Company or its licensees in the Northeast most aptly. The grip of the monopoly has been an iron one from its birth in 1878 to the present time. Opposition has been bought off, as instanced at the beginning, by the elimination of the Western Union Telegraph Company as a competitor worthy of its steel (which might properly be spelled s-t-e-a-l), since which time only spasmodic, feeble and disconnected efforts for the introduction and installation of competition have been made.

The company which I represent was then the Dirigo Telephone Company of Maine, and was the first legally chartered corporation granted broad and liberal rights by the state to lock horns with the New England (Bell) company. It was promptly placed for the time being "hors de combat," like the Irishman who tackled the bull, but with the usual happy pugnacity of the gentleman from Erin, who maintained, after being thrown over the fence, "Begorra, it's lucky I had me laugh first." The Dirigo company of Maine continued in the field and never surrendered or lowered its colors until now this corporation, under its new name, "Northeastern Telephone Company," is giving the bull of monopoly a red-hot fight. The Northeastern's companion, and ought to have been ally or partner, the Eastern Telephone Company of Rockland, has succumbed and surrendered to the blandishments of its almighty dollar and is now the tool and associate of the New England (Bell) company, thereby leaving the Northeastern Telephone Company the only absolutely independent long distance competitive company in the field, with liberal state charters for both Maine and New Hampshire, and owning trunk lines connecting between sixty and seventy exchanges and toll stations continuously, through as many towns and cities, with two hundred and sixty-odd miles of pole-line construction, from the Rangeleys in the north through the western, central and southwestern section of Maine, terminating at present at Portland, the chief commercial city of New England outside of Boston; in conjunction with its connections with other small companies it has options on other lines which will take it into New Hampshire, for which state it has a valuable charter.

The Northeastern company owns and controls the secret service automatic system for the Northeast and has perfected its plans for installation of that system in several cities in Maine and New Hampshire; the people of the latter state being aggressively awake are pushing for competitive telephone service (through the Northeastern Telephone Company) with a vim typical of the West.

The company has nearly one thousand subscribers to its service actual and immediately prospective. In fact, the demands are so great that it has been impossible to meet them promptly. Bangor, Skowhegan, Wherville, Augusta, Hallowell, Brunswick and Westbrook are all calling on us to install competitive service at once. In substantially all of these cities and towns our licenses are secured, which when exercised will connect with our trunk line service now in operation, as before noted. Capital is our only requirement to enable us to become the strongest opponent of the Bell company in the East. That necessary adjunct to our other great and valuable rights, privileges and physical properties we expect and hope to secure very soon, now that our plans and propositions have become perfected for large installation and expansion of the service. We shall use the secret service automatic exchange system (Strowger) for the larger exchanges, in conjunction with the manual, party-line service for long distance connections and smaller community exchanges for which we have successfully tested a selective party-line device, which makes every line a private one, thereby centering in the Northeastern Telephone Company a combination which the Bell cannot beat or overcome, electrically or financially.

All of these important acquisitions for the aggressive development of competitive telephone service in the Northeast have cost not only a large amount of money, but endless, persistent and unyielding effort, some of the incidents of which may be interesting to you as illustrating, as our friend Spofford is going to say, "How they and we do things in the Northeast." He will speak for Massachusetts. My experience in Maine has been sufficiently interesting, particularly to myself, to keep me busy since I became within two years actively identified in the great fight which independent telephone interests are making for the people.

I will begin by quoting the following section from the laws of Maine of 1895, chapter 102, portion of section 3, which reads as follows: "But no corporation organized hereunder shall have authority, without special act of legislature, to construct its lines along the route or routes used or authorized to be used by any telephone or telegraph company, person or firm, or between points connected or author-

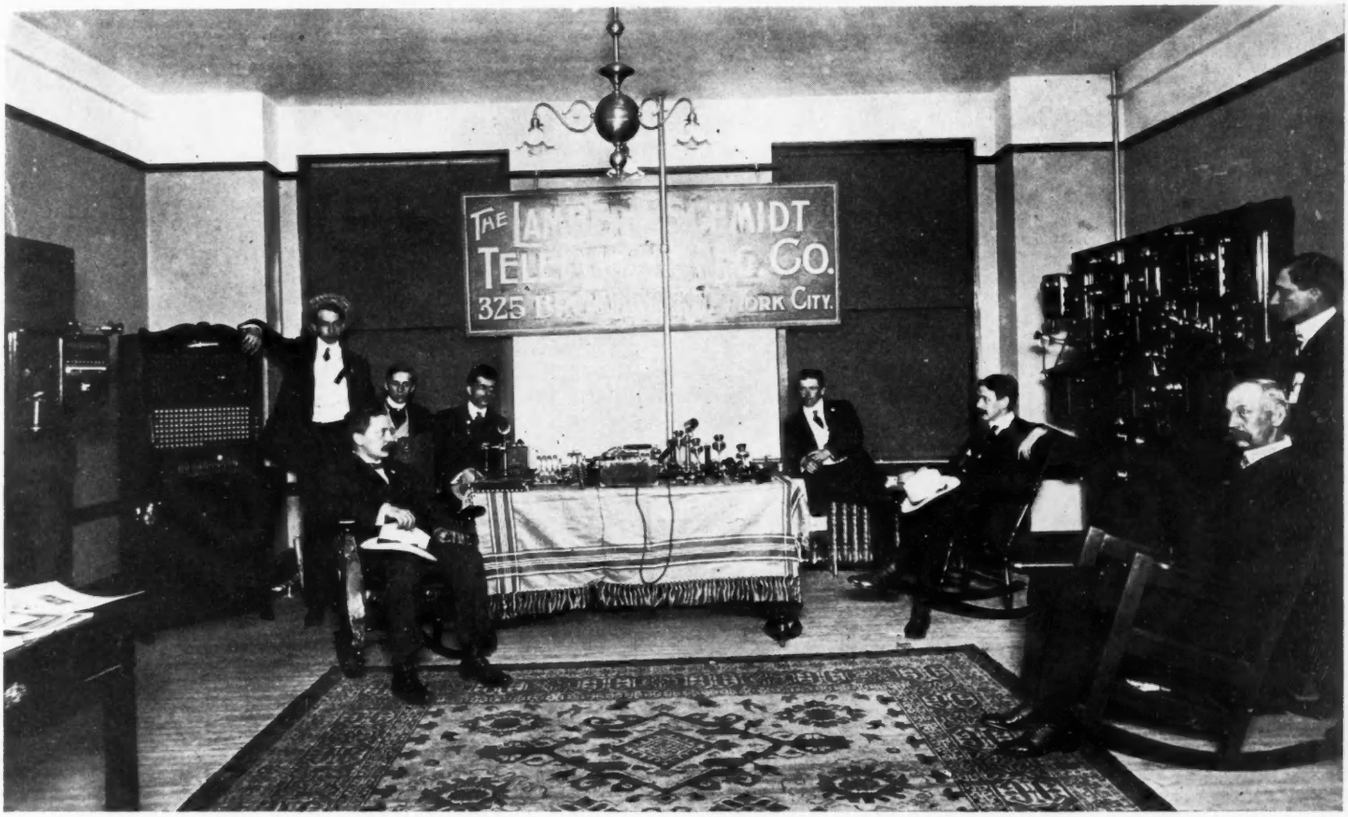


EXHIBIT LAMBERT-SCHMIDT TELEPHONE MANUFACTURING COMPANY, PHILADELPHIA CONVENTION.

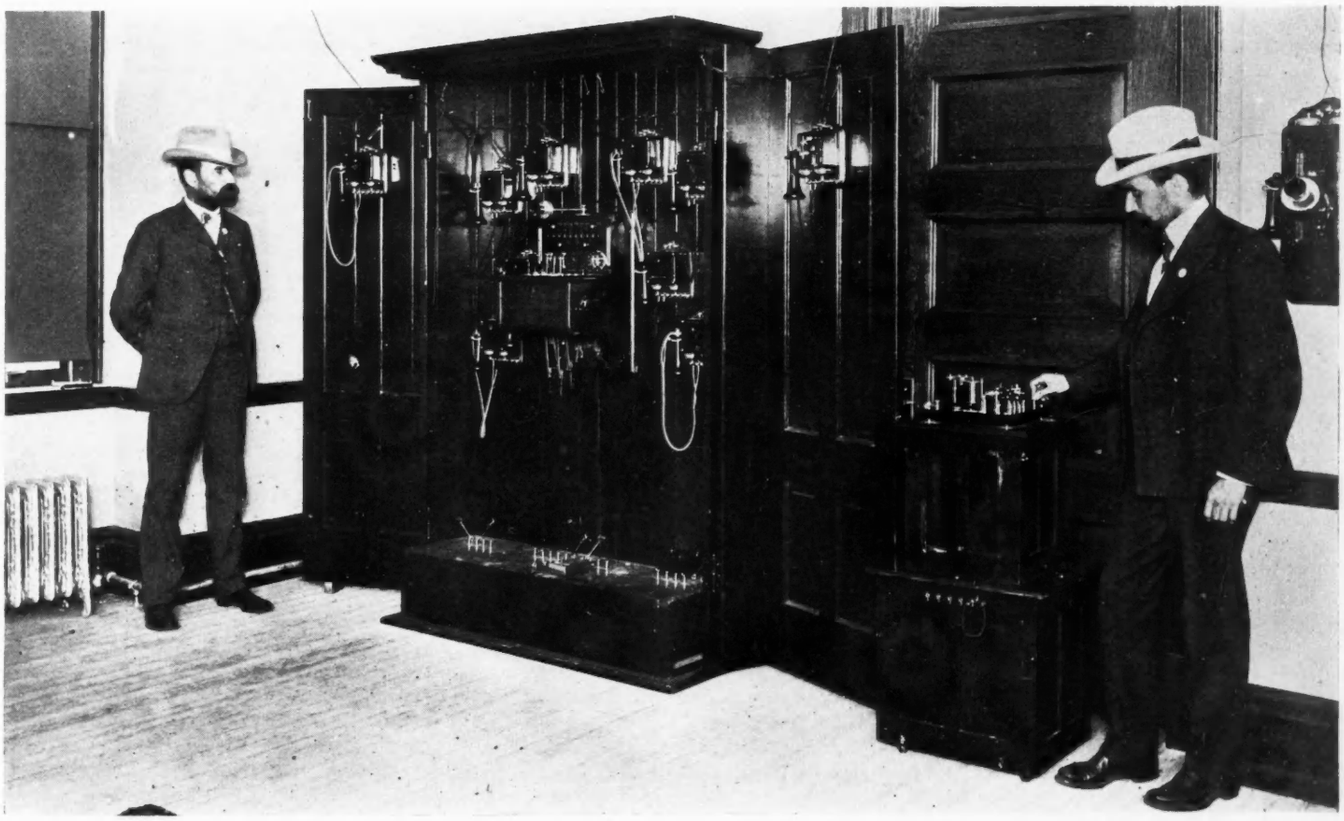


EXHIBIT MAYBERRY & HOLMES PARTY LINE SYSTEM, PHILA DELPHIA CONVENTION.

ized to be connected by the lines of any such company, person or firm, unless it shall first obtain the consent of such company."

This piece of legislation, one of the most damnable ever placed on the statutes in this country by so-called "representatives of the people," was intended to perpetuate the monopoly in Maine and nullify the declaration of independence and the constitution of our own state, which is similar to that of all other states, based as they are on the constitution of the United States, as so constructed by our patriotic forefathers, who believed with Lincoln in a "government of the people, for the people, by the people." Modern statesmanship reverses the principle and institutes unconstitutional legislation for the benefit "of the few, for the few, by the few." This statute was enacted about the time that the independent movement began, following the honest termination of the Bell patents. Such laws are worthy only of those

"Whose honor rooted in dishonor stands;
Who are faithful only to the faithless few";

or, who have adopted David Harum's theory—"Do others, or they'll do you; and do 'em fust." Such a principle may be excused in horse trades, but representatives of the people, whether in city councils, state legislatures or Congress, ought to be impeached and held up to the indignant scorn of their outraged constituency.

Connecticut, through its legislators, was similarly imposed upon, but not to quite such an open nullification of the rights of man. Evidently the representatives of that state (nearer Tammany Hall though they be than the honest representatives from Maine) thought the dose too strong to be tendered to their constituents, and their law as enacted provides substantially that no competition shall prevail unless consented to by the judge of certain courts of the lower strata, evidently applied morally as well as legally.

In addition to the evidences of sinister and apparently corrupt legislation in the "seats of the mighty" are the records of rotten manipulation of municipal governments or majorities thereof, as there is always an honest minority that "cannot be bought and will not be sold," or allow their constituents to be imposed upon. The most devilish methods have been used by the agents of the monopoly company, high and low in position, to defeat and destroy the possibility of competition. Sometimes the weaklings have been satisfied with bacchanalian entertainment in return for or preceding their votes. Others who had political ambition to satisfy were assured of financial and political support as a consideration for their perfidy. Others still (and I presume that even Philadelphia may have a few such men) demanded more tangible tribute in the shape of substantial money contributions under the cloak of "election expenses," etc. Even high and honored representatives of financial institutions and allied monopoly corporations, many of them, I regret to say, members of the legal fraternity, have been and are recipients of retainers from the great "octopus," supplemented by franks for long distance use of the telephone company's lines and free service from local exchanges, with other similar corrupting and corruptive evidences of dishonesty to the great public, which such men look upon only as a means to an end, to enrich themselves or advance their political ambitions, all of which has become the crying sin and shame of our American government, municipal or otherwise, in their relation to the people's interest.

In order that I may not be accused of scandalization, I will state that I have the proof in my possession to convince the most skeptical that what I have said is true, and I have not told the half, even without which the public records of scandalous legislation is amply convincing of the debauchery by which the great monopoly has intrenched itself (in the East, at least) for the purpose, directly and indirectly, of robbing the public of its substance and rights, whereby its original owners have become multi-millionaires. A condition which should never obtain to the owners or controllers of public-service companies, which I believe will ultimately be acquired and come under the control of national, state and municipal governments, for the accommodation and direct benefit of the citizens at large.

The financial policy of the license company of the American Bell in the Northeast is dictated by the magnates of that enormously watered stock corporation. In the Northeast the New England Telephone & Telegraph Company, in the days of its poverty and limited power, was reasonable in its charge for service and accommodating in its relation to the public. An early circular, a copy of which was loaned me for this occasion, is on exhibition, if you desire to examine it, at the secretary's desk. It states that the rate for service was $20 for residence use and $40 for business, a standard for annual rentals, on substantially the basis that the independent companies are charging in cities throughout the country, as against, in many cases, four-fold higher rates and in New York City six-fold, or $240 for single line service. In Portland the company's rates are from $25 for the exceedingly exasperating and annoying party line service up to $75 for residence use and $85 for business single line service, with more or less extras for so-called special conveniences. In other sections of Maine and the Northeast their rates are made to fit the local conditions, very high where no competition prevails or is probable, very low, down to $12 even, in some places where competition has dared to enter, with exceedingly high rates for three-minute conversations on toll lines. In the city of Portland, where the Northeastern is preparing for installation of competitive service, the New England company (after installing its so-called up-to-date improved central energy system) advertised free telephones for several months, providing the subscriber would contract for a term of years at their standard rates. This was offered to new subscribers only or those whose old contracts were subject to concellation or renewal. Their old subscribers received no favors whatever, consequently they are earnestly awaiting installation of the Northeastern's service.

The great earnings of the New England company have been made to appear normal by frequent increases in the capitalization and the watering of its stock, that the public might be fooled and made to believe that it was earning only 6 per cent. Its attorneys have frequently in my presence made the hypocritical, untruthful and deceptive assertions that competition is unnecessary and could not live because the old company was earning only 6 per cent dividends, a statement so easily overturned and punctured that it reacted with fatal effect. The results of overcapitalization, with the royalty charges compulsory demanded by the American Bell company of its licensees, with its excessively high expense and operating account, is becoming like a millstone suspended to its balloon-like form and condition.

Its first capitalization was $200,000, $50,000 cash, $150,000 patent rights. Six months later the Bell company was incorporated with an authorized capital of $450,000, $400,000 of which represented patent right and $50,000 only in cash. Six months thereafter the two companies were combined as the National Bell Telephone Company, which was capitalized at $850,000; $60,000 was for patent rights and only $10,000 cash; balance, $190,000, was represented in apparatus in use. Thus, at the beginning was instituted that policy of illegitimate, unnatural, intangible and excessive capitalization on which the public began and have ever since been compelled to pay arbitrary and extortionary interest. The collapse of the Erie Telephone Company may be a forerunner of what may happen to the American Telephone & Telegraph Company and some of its licensees. In fact, it has already happened to the Central Union, the Michigan, and possibly other licensee companies, where aggressive competition has punctured the fraud which the public always has and always will suffer by when the smash comes. But they can rest assured that the original

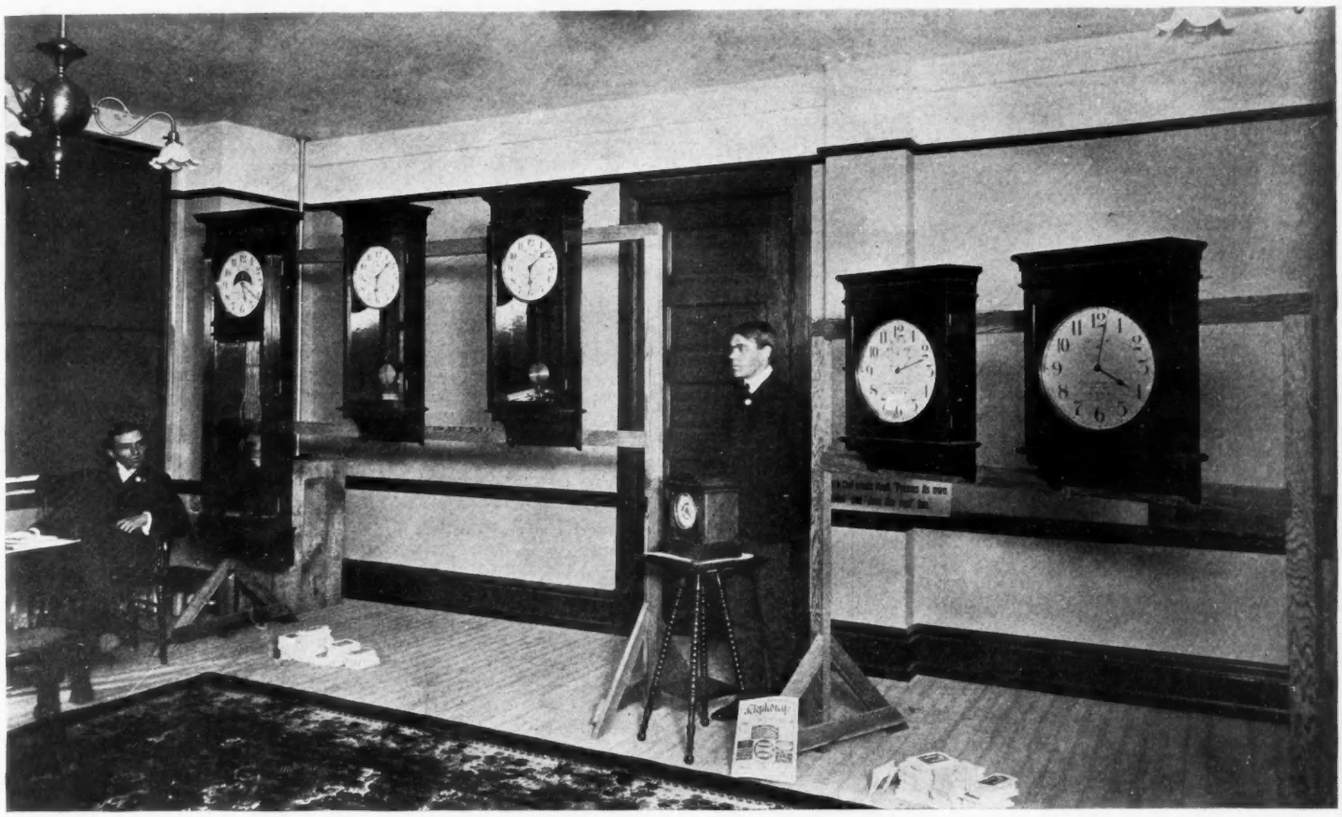


EXHIBIT NATIONAL SELF-WINDING CLOCK COMPANY, PHILADELPHIA CONVENTION.

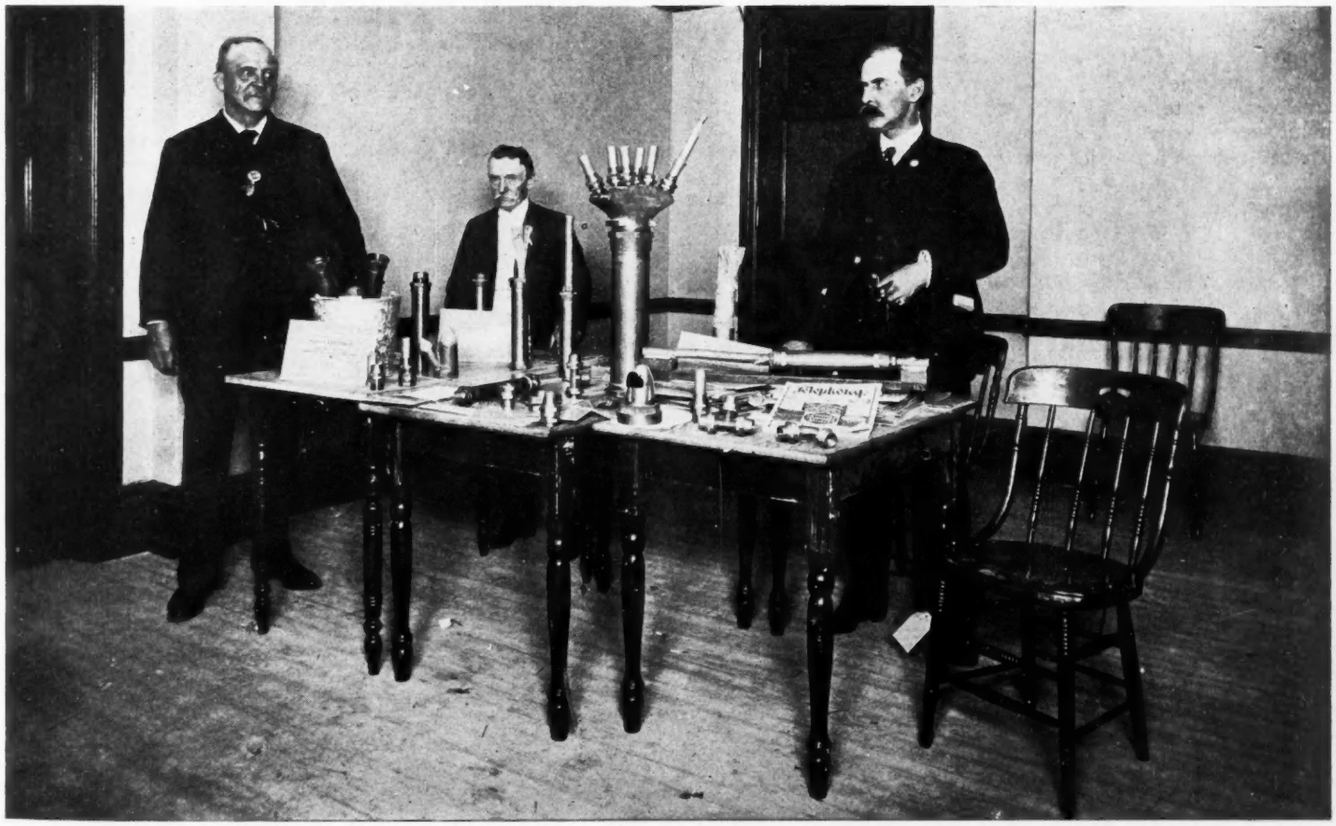


EXHIBIT NEW HAVEN NOVELTY MACHINE COMPANY PHILADELPHIA CONVENTION.

leaders and owners in the management will be out from under the slump when it occurs.

As applied to the present New England Telephone & Telegraph Company operating in the extreme Northeast, *i. e.*, Maine, New Hampshire, Vermont and Massachusetts, the last annual report, supplemented by the last statement available for examination March 26, 1902, shows the capitalization to be $20,000,000 gross, represented in stock, of which $18,623,500 was outstanding as dividend earning, plus $4,000,000 in bonds, plus $863,782.08 in debts. Its reserve was reported to be $837,823.48, profit and less including surplus, $1,205,648.33; total liability, $24,630,753.69, which was offset by its asset account as per its certificate of condition, as follows: Real estate, $54,612.28; cash and debts receivable, $2,534,971.15; material merchandise and stock, $795,659.23; miscellaneous (whatever that may be), $952,666.07 (quite an item for incidentals not classifiable); last, and most important to the public (rentals, subscribers and toll payers, as well as prospective investors), was $20,952,844.55 in patents and franchises, on which a long-suffering, patiently bled public have been and are paying interest, to which is to be added $100,000,000 more stock, as recently announced, which will carry the entire capitalization of the New England Telephone & Telegraph Company up to about $35,000,000, represented by less than 100,000 telephones in service in the four New England states it operates within. An examination critically of the company's statement reveals a condition which competition ought to be satisfied with. For instance, its earnings for 1901 from exchange service is reported as having been $3,769,844.09; its expense account outside of dividends paid, was $4,139,989.79, or over $200,000 in excess of its earnings from exchange service. Included in the items of expense is $254,222.89 rental and royalty charge, arbitrarily demanded for use of instruments from its parent, the American Bell company. Its dividends, with a small surplus for such a large income and amount of business done came entirely from its toll service revenue and other small incidental items. This condition indicates what will happen when competition gets after this expanded monopoly company, hot and solid, contra to which are competitive telephone companies in the Northeast with capital sufficient to develop and extend local exchange and long distance service (which the Northeastern Telephone Company is rapidly placing itself in a position to do).

In Massachusetts, as my friend Spofford will undoubtedly show you, they are pushing the development to a profitable and successful position. The automatic companies using the Strowger secret service exchange system in Fall River and Rhode Island are making splendid showings, considering the short time which they have been operating. I believe that the system there installed is by all means the best one (because of its elimination of that expensive luxury, the telephone girl, and its direct automatic secret service features) with which to beat the old, inflated monopoly. Systems, however, are subject to the judgment of each company and the local conditions necessary for it to operate under.

Finally, thanking you for your most kind attention and consideration, I will close with the hope that the Independent Telephone Association of the United States of America will continue to grow in influence to an extent that will make it a recognized power for good and for the protection of the public and its interests in the expansion of that greatest convenience, educator and economical factor in the affairs of life, business and social, the telephone (whether it be through the automatic secret service or the manual, non-secret, party line system).

Mr. Goudy was followed by Mr. Edward E. Webster, general manager of the Twin City Telephone Company of Minneapolis, Minnesota, who read the paper prepared by Mr. C. H. Judson of Minneapolis, who was unable to be present.

C. H. JUDSON'S PAPER.

The independent telephone companies of the northwest, particularly in the states east of the Rocky mountains, have made tremendous strides in growth during the past two years. Of the northwestern states Wisconsin is older in independent business, naturally because of its proximity to the state of Illinois, which was among the first to go into the independent business heavily. The independents began operations in Minnesota as early as 1893, when two or three venturesome individuals established exchanges in towns lying at a considerable distance from the commercial center of the state. These exchanges were not in competition and were soon connected with the Bell systems under traffic arrangements.

The entire northwest has been the scene of the same peculiar business methods that have been adopted by irresponsible promoters of independent telephone companies everywhere. These gentlemen built extensively, but cheaply, and the inhabitants along their lines furnished the funds for their construction; but their day passed three years since, and they are to-day either gone forever or have become legitimate telephone operators, although principally in other fields. The independent telephone lines that are building to-day and that have been built within the last two years in the northwest are built by men who expect to own and operate them. Their experience with the promoters demonstrated to them that the lines would pay and that by building better their money would be more secure. Many of them have acquired the old lines in various ways and have reconstructed them, sometimes in their entirety and in nearly every instance by changing the wires and making the circuits metallic, since the old money making scheme of the promoters generally involved a very cheap grounded line.

The field in Minnesota and the two Dakotas has been a good one for the independents, since the Bell Company operating in these states owns a comparatively small number of exchanges, perhaps not to exceed sixteen in all. It was found that if a good independent exchange were built along the route of the Bell Company's long distance lines that the Bell people were immediately anxious to secure connections with the new exchange. This, of course, helped to encourage the independents very greatly and while the Bell Company has built no new exchanges in the states mentioned within the last five years, every town of five hundred inhabitants or more has a telephone system, some of them reaching to the important centers near them over independent lines exclusively and some part of the way over independent lines and part of the way over the Bell lines. The policy of the Bell Company being to absorb the lion's share of the receipts, the arrangement has not been altogether satisfactory to the independents and new toll lines have been constructed giving strictly independent connections with the largest independent exchanges from the outlying districts. Other lines are planned for construction during this and the coming season, which will give the center of distribution, that is the Twin Cities of Minneapolis and St. Paul, close connections with all points in the states of Minnesota and North and South Dakota and will link the splendid system of the Wisconsin independents to it, making a Northwestern independent system capable of holding its end of the competition.

From the report of President Vallentine of the Wisconsin Association I quote the following statistics as to the independents in that state:

Exchanges, 137; copper metallic toll lines, 200 miles; iron metallic toll lines, 3,000 miles; iron grounded toll lines, 4,000 miles; toll stations, 650; telephones in use, 23,000; invested capital, $2,316,875.

From the fact that the Minnesota association has just been organized it has been impossible to gather complete sta-

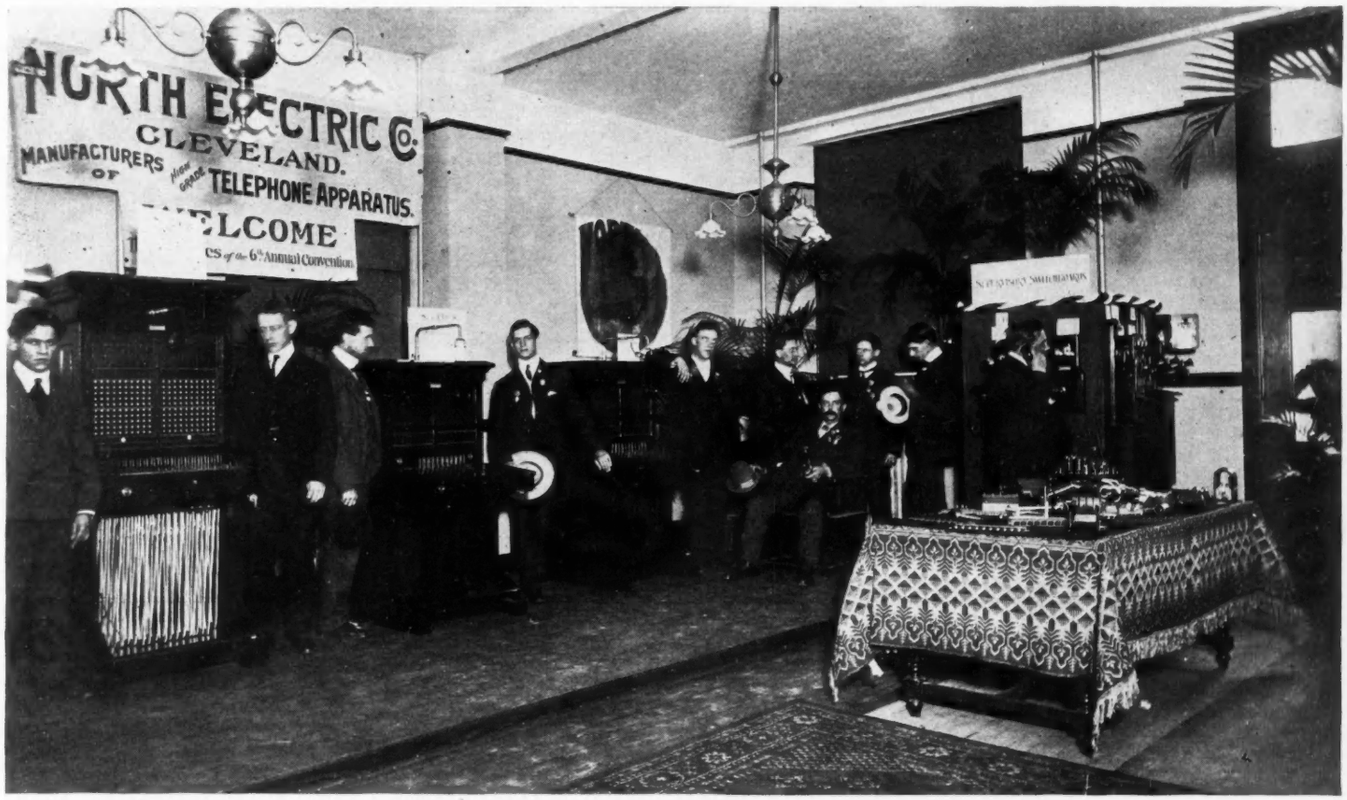


EXHIBIT NORTH ELECTRIC COMPANY, PHILADELPHIA CONVENTION.

EXHIBIT NORTH ELECTRIC COMPANY, PHILADELPHIA CONVENTION.

tistics regarding the business in that state, but from present information they are as follows:

Exchanges, 147; miles of long distance toll lines, 4,000; miles of circuit, 7,000, of which 1,150 miles are copper metallic; toll stations, 725; invested capital, about $3,300,000; telephones in use, 34,000.

South Dakota shows 103 exchanges, 2,350 miles of toll lines, 450 toll stations, and North Dakota 80 exchanges, 1,875 miles of toll lines, carrying 2,750 miles of circuits and 350 toll stations.

This showing is indicative of the enthusiasm which prevails in the Northwestern states regarding independent telephony. Since the Bell Telephone Company came into control of the Northwestern Telephone Exchange Company and the Wisconsin Telephone Company their licenses in that territory, it has been endeavoring to tie up as many as possible of the independent exchanges under the Bell license contract, by the terms of which the exchange company agrees irrevocably to sell to the Bell. Very few of the independent exchange companies have signed this contract. They hold the situation in their own hands, as the long distance connections are of far greater importance to the Bell Company than to them; they are firmly maintaining their position and closing no contracts which will bind them to the Bell corporation. In the natural order of events the Bell Company will make extraordinary efforts to get hold of many of the larger independent systems, since if they are cut off from them they will lose very valuable connections in future. Were the independents in a position to duplicate on short notice the six trunk lines running in various directions throughout the state of Minnesota and into the Dakotas, the Bell people would find themselves without feeders in almost the entire territory, so that it is very clear why they should make the most extraordinary efforts to tie the independent people to them. There is little danger as matters stand at present that such a consummation will come to pass unless inducements far out of the ordinary are made. In any event, however, the money received would probably be reinvested by the independent who sells out to the Bell in an opposition plant, giving him in all probability a better exchange and toll line system than he had before.

The largest independent company in the northwest is the Twin City Telephone Company, operating exchanges in Minneapolis and St. Paul. This company entered the field in 1898 under the name of the Mississippi Valley Telephone Company. In 1901 the name was changed to the Twin City Telephone Company and a new organization and ownership effected. The plants of the Twin City Telephone Company in the two cities are in active competition to the Bell people and are giving a quality of service which probably cannot be excelled in the country. The construction both aerial and underground is of the very best, the equipment is of the most up-to-date and efficient pattern and great care has been exercised to procure only the very best material and apparatus in all of the work.

A large portion of the work in both cities is underground, vitrified clay conduit being used exclusively, something like 1,000,000 feet of conduit being now in. The cable used runs from 200 pairs down, built on the very best specifications, all being No. 19 B. & S. G. double wrap.

The pole lines of the Twin City Telephone Company are probably the handsomest to be found in the country, Idaho and Washington poles having been used for the most part and painted uniformly.

The plant of the Twin City Telephone Company comprises seven exchanges in the cities of St. Paul and Minneapolis, the company owning four of its own buildings, all having been constructed within a year, and each being built especially for the purpose in the most convenient and substantial manner. The extraordinary amount of territory covered by the Twin City Telephone Company renders the branch exchange system a clear necessity and the trunking service between the different exchanges has proven very satisfactory. The total ultimate capacity of the switchboards which are now installed is about 26,000 in the two cities. New switchboards will be installed next season adding five or six thousand ultimate.

The growth of the Twin City Telephone Company's business has been along the same lines as of all other independent companies and has even surpassed the expectations of those who are familiar with the demands which might be made upon them.

Nearly 7,000 telephones are now in operation in Minneapolis and St. Paul, and orders are being taken and installed at the rate of over 500 per month. The Twin City Telephone Company installs no party lines, and it is therefore for the present cut off from doing business with a large number of the subscribers of the Bell Company who can afford to pay but little for a telephone. This, however, has no effect on its earning power nor upon its business prospects, since the telephone user who must get along with a telephone at a dollar and a half a month is of comparatively little importance in the business field. The company has installed a large number of private switchboard systems and has been compelled to maintain a separate department for the installation and care of this particular branch of the work. The company has invested over $2,000,000 in the Twin Cities up to the present time.

The Zenith City Telephone Company of Duluth is the second largest independent telephone company in the state of Minnesota. It commenced construction in 1899, and at that time the Bell Company in Duluth had 700 subscribers. At the present time the Zenith City Telephone Company has about 1,900 subscribers in Duluth and it is unable to keep pace with the demand. Closely allied with the Zenith City Telephone Company is the People's Telephone Company of West Superior, Wisconsin, which began business at the same time, and has been as prosperous as the Zenith City Company.

These two companies are connected with the Twin City Telephone Company of Minneapolis and St. Paul by a long distance line carrying three No. 10 copper circuits. This line belongs to the Consolidated Telephone & Telegraph Company, a corporation composed of officers of the Twin City Telephone Company. This connecting line is doing a good business and must have made some impression on the American Telephone & Telegraph Company, which it parallels, since immediately upon the completion of the Consolidated line the A. T. & T. charge was cut from seventy-five cents between the Twin Cities and the head of the lakes to forty cents, the Consolidated Company having made its rate considerably lower than the old rate. The company is doing a very satisfactory business and has some twenty-eight stations on its line, which is about 150 miles long, the through business between the head of the lakes and the Twin Cities being especially good.

The Consolidated Telephone & Telegraph Company has material on the ground for the construction of a line between St. Paul and Eau Claire, connecting at that point with the Wisconsin system and running directly into the exchanges in Eau Claire, Menominee and Chippewa Falls, Wisconsin; also a line running southeast along the river to La Crosse, Winona and intermediate points, perhaps thirty in all. This line will feed a large number of lines which have connections with the Twin Cities and will probably get 100 toll stations and 25 exchanges off of these lines; 1903 will see the Consolidated Telephone & Telegraph Company's lines extended southwest and west and northwest into the territory which is now connected with the Twin Cities only by Bell lines. These lines will be of the very best copper construction since the Consolidated Company builds no iron lines except for the occasional accommodation of two or three small exchanges who wish connection among themselves here and there for local business only.

EXHIBIT RUSSELL TOMLINSON ELECTRIC COMPANY, PHILADELPHIA CONVENTION.

EXHIBIT STROMBERG CARLSON TELEPHONE MANUFACTURING COMPANY, PHILADELPHIA CONVENTION.

The United Telephone & Telegraph Company, with headquarters in Minneapolis, operates about 250 miles of line running southwest and south from St. Paul, with connections with the Twin City Telephone Company. These lines pass through three of the largest towns in which the Northwestern Telephone Exchange Company has exchanges, and in each of these towns an independent exchange is doing a successful business. One of these cities, Mankato, Minn., is rebuilding its entire plant this season, installing a new lamp signal switchboard, and putting in considerable underground construction. The Winona Telephone Company is also very successful and the La Crosse Telephone Company is well known to be one of the pioneers in the independent field and is doing remarkably well.

Perhaps the most successful independent in Wisconsin is the Madison Company. It is well known that in that vicinity the Bell Company does practically no local business and were the Wisconsin company well supplied with copper circuits running through the state and connecting up the various independent exchanges, there would be comparatively nothing for the Bell Company to subsist on.

Farmers' lines in Minnesota are taking hold in good shape, one company having over 400 farmers connected with its lines and increasing its plant constantly. Parts of Wisconsin and Minnesota are as good farmers' line territory as can be found in the country, while other portions, of course, are so thinly settled that it will be some years before much is done along this line.

At the meeting of the Minnesota independents recently held in Minneapolis, the constitution adopted contained an important clause and one worthy of mention at this time. It particularly provides for the elimination of poor construction and the building of toll lines and exchanges in the best possible manner, standardizing the work to the greatest possible extent. The independent owners in Minnesota have found that poor construction is not satisfactory from an investment standpoint, and this agreement is certain to give the business in our territory a solid basis for future calculation and a standing among the independent systems of the country.

Portions of the Northwest demand telephone service because of the long distance between railroad stations and their inaccessibility at certain seasons of the year. In these districts it has been found difficult to make a good line pay at present, but the telephone has been found to be an active agent in the settlement and building up of a new country, and men of means and energy are at hand to furnish next to transportation facilities, the most valuable adjunct to frontier and backwoods settlements. Fortunately many of these districts supply plenty of good cedar poles immediately at hand, making the construction to a great degree cheaper than in the more settled districts. The telephone is so important to every class of business and to every kind of community that no one is willing to be without it, even the Indians on the reservations, among the more educated ones, find the telephone to be of some use to them, since the farmers among them have learned that if they have anything to sell they are certain to get better prices where they can ascertain what the markets are at the centers of trade.

The general conclusion that I would have you draw is that the Northwest is not behind the Middle West nor the East in the pushing forward of the independent telephone movement. As the same sun shines on the man in Maine and the man in Oregon, and the same desires for the conveniences of life are experienced by both, so it is with the man in the large city and the man in the rural districts. The wheat growers on the rolling prairies of North Dakota, the miners in the cavernous hills of South Dakota, the lumberman in the pine woods of Northern Minnesota, and the dairy farmers of central and northern Minnesota, all need the telephone in their daily lives and it is just as certain as anything human can be that every crossroad and every city and town will soon carry its copper network through these Northwestern states, linking together its people and bringing the Black Hills miners, the great wheat farmers, the lumbermen, the iron and copper men, the manufacturers and all the myriads of others whose lives and interests are mixed with theirs, so closely together that it will soon be but the turning of a hand and the lifting of the receiver to talk on independent lines from the falls of Minnehaha and St. Anthony to the Pictured Rocks, and from the Black Hills and the Bad Lands to the shores of Lake Michigan and the rushing waters of the Sault St. Marie.

The reading of the paper of Hon. H. D. Critchfield of Cleveland, Ohio, on the Financial Status of the Independent Telephone Movement was deferred and ordered printed in the convention records.

A very interesting discussion concluded the session, in which Mr. Webster, Mr. Goudy, Mr. Sheerin, Mr. Critchfield and others participated. Mr. Webster stated that his company was making rapid and steady progress and was about to increase its central office capacity. Mr. Goudy gave some of his experiences with Bell competition, which were an echo of the experiences of many of the delegates present. Mr. Sheerin denounced the making of toll line connections with the Bell company and said that in Indiana the companies who had signed toll line agreements did not get what they bargained for. Mr. Critchfield said that in Ohio the Independent toll lines were better than the Bell's.

Thursday's session began with an interesting talk by Mr. Thomas Martindale of Philadelphia, who detailed the Independent struggles in Philadelphia, which had culminated in the building of the Keystone Telephone Company's plant.

Hon. S. P. Sheerin then read the paper prepared by Hon. L. J. Hackney of Indianapolis, on "Where We Were and Where We Are."

HON. L. J. HACKNEY'S PAPER.

When this subject was assigned me I concluded, of course, that "Where We Were and Where We Are" referred solely to the telephone situation in the state of Indiana. We Indiana people have gotten into the way of thinking that we are pretty nearly the "whole thing."

We think we may modestly claim that Indiana has had a greater development in the independent telephone business than any other state in the union. There are many reasons for this. The people of Indiana are so situated, with reference to each other, that it is not difficult to get them to unite on a business proposition.

We sometimes differ as to policy and occasionally have some pretty warm differences, between ourselves, in politics; but we are all for Indiana and the interests of the whole country, as we understand them, and do not hesitate to enter into a contest for what we believe to be right at any time.

Then, again, we have always been a self-reliant people. Few things have come to us for which we have not labored hard, and we have not achieved many victories of any sort without a pretty stubborn fight. We wanted telephone service because we had found out that it was a good thing. We especially wanted it in the small towns and in the country, and in these places, under the old regime, it was impossible for us to obtain it.

The independent telephone movement had its birth at the expiration of the basic Bell patents. The telephone, as a commercial and social agent, had been in service for more than seventeen years. The service was extremely limited, however, because in its first years its projectors looked upon it largely as an experiment, and a great many very sensible people the country over regarded it as a toy.

During the last twelve years of the existence of the Bell company patents, however, there was a very much larger demand for telephones and telephone service than the national Bell organization felt itself willing to meet.

A very large number of licensee companies were organ-

EXHIBIT WARNER ELECTRIC COMPANY, PHILADELPHIA CONVENTION.

EXHIBIT SUMTER TELEPHONE MANUFACTURING COMPANY, PHILADELPHIA CONVENTION.

ized for the purpose of doing a telephone business in the several states, but over the whole situation and in every move of the companies hovered the idea that the business was to be exploited solely for the benefit of the exploiters.

I do not mean to say that the first telephone people were in this very different from other people who put their money into new enterprises. But certain it is that they insisted upon controlling the field by virtue of their patents, and yet declined to occupy the whole field or even a small part of it acceptably. A rule of the companies was to get the maximum amount of earning capacity out of the minimum amount of construction and equipment.

Thus, during the entire life of the Bell patents, one of two courses was pursued in every section of the Union: First, either a direct refusal to extend lines to certain points—with a suggestion that there was no power that could compel the company to go where it did not want to go—or, second, rates were made so high as to be practically prohibitory.

In the large cities of the United States the telephone service under this arrangement was confined to the densely populated business centers. True, there were some few residence telephones, but as compared with the population and with the development which has since been made, the number was insignificant.

The telephone business was profitable—at least it was to the parent Bell company, which furnished the telephones to the subsidiary companies. These telephones were manufactured by an institution controlled by stockholders of the parent company, and the parent company charged the subsidiary companies a good, fat royalty for the use of the instruments.

Many of the fairly large cities of the country either had no telephone service at all, or very small and indifferent plants. The smaller cities and larger towns of the country had never been supplied with telephone service, nor could they obtain it—no matter what inducements they were prepared to offer.

Such a thing as a telephone to a farmer would have been regarded as a huge joke by the parties then controlling the telephone business in the United States.

The oncoming of the independent movement changed all this. It had its origin, not so much in the desire of persons to enter into the telephone business as a business, but from the necessities they felt themselves to be under to have telephones.

The telephone had come to be acknowledged as a great public, commercial and domestic necessity. People who had knocked at the doors of the Bell company for ten long years, imploring an opportunity to pay even exorbitant rates for telephone service, gladly made financial contribution to telephone companies which promised them quick service.

It was no trouble anywhere in the country, especially in the West, to get up a telephone company and have all the stock paid up in a night. That is why the independent telephone business has the smallest bonded indebtedness of any business in the country. While not what is legally understood as co-operative, it has been from the beginning, largely a co-operative enterprise.

It is an enterprise in which all the people co-operated to get the thing they wanted, without caring very much as to the details of the co-operation. The man who was willing to put two to five hundred dollars into a telephone company for the sake of getting a telephone simply wanted the best service that he could get, at fair rates, and was not at all particular as to whether he was to be continued in the company or not. If it was thought desirable that he stay in he was willing to do it. If the purposes of the company could better be carried out by letting some one else have all or part of his stock, he gave up cheerfully. The result has been the most stupendous business growth that this or any other country has ever seen.

These conditions, which prevailed the country over, were more pronounced in Indiana than anywhere else. An attempt had been made, in the legislature of 1883, to regulate telephone rates, the maximum monthly rate being fixed at $3.

The Bell company (the Central Union) took offense at this attempt to interfere in any way with its business and actually tore down and carted away quite a number of telephone exchanges.

This proceeding outraged the people so much that, although a great many years had gone by, they had not ceased to chafe under it. The town upon which the wrath of the Bell company had thus been visited, and which had been obliged to get along without any kind of telephone service for twelve years, were eager for any opening that would give them an opportunity to supply themselves. They were perfectly willing to fight for what they wanted, provided they could get it at the end of a fight.

The manufacturers of independent telephone equipment, who at that time sprang up the country over, gave our people an excellent opportunity, and in a very little while we had twelve or fifteen towns and cities in the state of Indiana with right good independent exchanges. These exchanges in turn enlarged their spheres of usefulness and extended their lines out through the country.

One development brought on another, until there was a great demand for an exchange at our capital city, Indianapolis. The exchange at Indianapolis brought about a demand for long distance toll service between the exchanges throughout the state and the larger one at the capital.

It was apparently impossible to get money for these enterprises on the outside. So our people did as they always have done in an emergency of this sort, they went into their own pockets and paid the bills.

The result has been that we now have in the state of Indiana something over 70,000 excellent independent telephones, every one of which is giving very much better service than any Bell instrument we ever had gave up to the time that the independent movement was inaugurated.

We have, in addition to that number of telephones, about 6,000 miles of very excellent toll lines, and an apparently uncountable number of miles of country lines, designed purely for intercommunication between farmers.

All this, as I have said, has been brought about by our people themselves. The total indebtedness of our Indiana telephone property does not represent to exceed 5 per cent of the total cost.

We now have a telephone plant in operation or under construction in every important city and town in the state except one, the city of Evansville, and it will not be long until work will be begun there.

Our people have learned a whole lot about the telephone business as they have gone along. One of the great "scare-crows" that was held before the eyes of our people who thought of making investments in independent telephone property was that no independent telephone company could be successful without long distance connections. By "long distance connections" was meant an opportunity to talk with New York, Boston, Philadelphia and Chicago.

This looked, to begin with, like a strong argument, but as we have gone along we have gathered some very valuable statistics on this point. One of the things that we now know, and which we are able to give you as a certainty, from the experience in our state is that of all the telephone messages originating in the state only 2½ per cent go out of the state. That is to say, 97½ per cent of the toll messages originating within the boundaries of Indiana are for points within the state. We find, too, that about 89 per cent of all telephone messages originating at or terminating at any given center of population go and come from within a radius of thirty-five miles.

If we would stop to think about it, this is quite a

rational condition. The telephone business follows the beaten paths of business generally.

The farmer who talks over the telephone very seldom talks further than to points where he would occasionally have to drive or go by rail. What he wants is good telephone service over the amount of territory he has to cover. As a general proposition, the farmer who can drive ten miles on a good gravel road in either direction from his farm is not bothering himself very much as to what the conditions of the road may be in any direction outside of that ten miles.

The thing that people want is the thing they have to use. We are all, in a measure, more or less selfish. We may take some interest in the affairs of our neighbors, in the abstract, but the thing that comes home to us is that which ministers to our daily wants.

It will be seen from this that the important thing in independent telephone development is, first, to have good exchanges in the cities and towns, occupying the whole field and giving telephone service to every one who wants it. Next, we want a good system of toll lines, reaching as far as the business of our towns goes. A town may have a thousand subscribers, and in that town there may not be one man who ever wants to talk to New York, and the chances are that there will not be any one wanting to talk to San Francisco.

But while this is true, the conversations will be frequent within the business zone of the particular town; and within that territory you want not only the best toll lines that you can get, but you want enough of them.

Keep putting on circuits just as long as the people will patronize them. The opportunity to have quick action on a toll line induces more business. The more business you do the more you will have to do. The best advertisement that any company can have is the hearty commendation of the people who are obliged to use its lines.

I have told you now briefly where we were, so far as our state is concerned, and where we are. My own conviction is that the independent telephone interests in Indiana are impregnable. It is not a pleasant task to say unkind things of one's neighbors and competitors. The Bell companies have made very serious mistakes. These mistakes have been our opportunities. We are not only close to the people, but we are of the people.

The telephone, of necessity, is a domestic institution. It sits by the hearthstone of the family and it sits there all the time. Its derangements and failure to give good service affect every one in the household, from the six-year-old schoolboy who wants to ask his schoolmate who had to go home quickly because he had eaten too many green apples how he is getting along, up to the grandfather who, with life's labor nearly done and whose eyes are reaching out to the great beyond, wants now and then to discuss a text with his minister.

We believe in our state that no telephone company can ever succeed without local financial interest and local management. It would be just as easy and just as sensible to undertake to run the street and sewer work of an Indiana town from Boston or to have the school trustees and teachers appointed at New York as it would be to successfully run a local telephone plant from either of those places.

The telephone is unlike every other public utility. It enters into relations with the people in a way that is not paralleled by any other industry.

We have, as I have said to you, in the state of Indiana over 70,000 independent telephones. If we had all over the state at this time the same development that we have in the county where we have the largest development we would have 250,000 'phones; and if we had all over the state the same development that we have in the little town of 2,000 people where we have the greatest development we would have 412,000 'phones. We feel quite certain that we will have that many telephones within the next five years.

Our rates are reasonable, and they yield a decent profit. We have not paid in any instance exorbitant promotion rates, nor have we filled our stock lists with water.

Our people have come to understand that the telephone business offers a fair and sure return for their money. They believe that it has come to stay and will always have its highest development in the hands of local people.

I have undertaken to tell you where we were and to give you some idea of where we are; and I predict that in five years we will have within the limits of the state of Indiana 500,000 telephones.

Mrs. Annie McElroy Brett of El Paso, Tex., the most widely known and successful woman in the Independent field, then gave a very interesting talk on her experiences in the telephone business. Mrs. Brett is now completing the building of the El Paso exchange, which is to be of 3,500 capacity. More than half that number of contracts have already been received. She is also extending telephone lines throughout Texas and into Mexico, making remarkable progress. Mrs. Brett was cheered and congratulated by the convention for her work for Independent telephony. She has practically compelled the Bell company to leave El Paso.

MRS. BRETT'S REMARKS.

It is certainly very kind of you gentlemen to grant the indulgence to one lone woman to come here and speak. I feel that almost everything has been said that can be of interest, and all I can do will be to give a brief outline of the work in my own territory.

When Judge Thomas spoke of my husband's work having been carried on in Texas he was not quite correct. It was in Michigan—around Detroit, Grand Rapids and Port Huron.

When I took up the work in Western Texas, the conditions were very much the same as they were in Michigan in the early days. The people had to be educated to know that another company could come into the field and compete with the Bell.

Two years ago, when I started the work in El Paso, the Bell company had 300 telephones in service, and they were charging $3.00 to $5.00 a month. When I commenced the work I thought if I reached 600 telephones I would be doing well. To-day we have 1,550 three-year contracts.

Our franchise is rather peculiar. We have a sliding scale. We are permitted to charge $20.00 and $30.00 up to 1,000 telephones. In excess of 1,000 telephones, we are permitted to increase the price 50 cents per telephone. The contracts with the people also permit this.

It was necessary, before obtaining those contracts, to educate the people to the one fact that, in the telephone business—unlike most other kinds of business—the larger the plant grows, the less money there is, unless one is permitted to increase the rates in proportion.

I believe that it would be possible for all companies to obtain these concessions if the telephone companies would educate the people to know that this has to be done. They have to be educated to it.

The proposition is exactly the same as that of water, gas and electricity. Up to the present time, we are not able to measure our service by meter. It may come to that—and I hope it will—but, in the absence of that, we have to do the best we can, and I figure that fifty cents a year per telephone for 100 new connections, if it is worth anything to a person, it is worth that, and still keep a very nice proposition for the company putting in the plant.

The Independent companies, in the pioneer days of the Independent work, made the mistake of cutting the prices of the old Bell company too low; and, not realizing that that would put many more telephones in use, they found

themselves with a proposition on their hands that was very hard to handle, unless the council would be generous enough to change their franchise and allow them to raise their rates, and even then, it would be hard to educate the people so that they would be willing to pay the new rates.

I feel that the Independent people should make a point of enlightening the people upon this subject. Every one who has seen our franchise looks upon it as one of the best in the United States—particularly because of that one clause, and it astonishes every one that I could secure the contracts in the same way.

I spoke of the work of the old Detroit Independent company, which my husband organized. After his death the company went into the hands of the Erie; but, in justice to the gentlemen who had control of the company at that time, I will say this: I really thing that if the Detroit company had had a price for telephones at which they could have maintained a good plant, and, at the same time, have made a good profit, that consolidation would never have been made.

The price the old Detroit company had was one that was not asked for. At the time we were seeking the franchise we asked for $36.00 and $56.00; but there was a strong fight made by the local company, and the council, hoping to defeat us, put the price down, and, as it was the best we could do, we accepted the franchise.

Starting out with two or three thousand telephones it was a very good proposition; but when the company had six or seven thousand telephones they found that it was not a paying investment.

I am afraid that some of the other Independents, who have cut the price too low, will find themselves in a similar predicament, unless the city council and the people will grant them the privilege of changing the price, as the plant increases.

As the town of El Paso is growing rapidly, I feel that, with our franchise and contracts permitting the advance in prices, we have a very handsome proposition. We also have franchises in a number of the small towns around El Paso—one in Alamaguado, New Mexico, 80 miles distant; one in Cloudcroft, a distance of 20 miles; in Deming, a distance of 80 miles in another direction; and from there we expect to run to Silver City.

I received a telegram yesterday saying that our company would be granted a franchise in the state of Chihuahua, Mexico.

Our distances are quite great, and we have hardly the proposition that you have here; but the people are very nice, indeed, and they are very willing to pay a good price for long distance service. The gentlemen of the Chamber of Commerce sent me word that if we were ready to go ahead with our long distance lines they would be glad to give us the preference, as they felt that we, having the local plant at El Paso, held the key to the situation, and that the long distance service rightly belonged to us.

We would have had the El Paso plant opened several months ago but for the fact that the Bell company has never ceased in its fight against us. It has been one injunction suit after another. It has now gotten to a point where the Bell company has just ten subscribers that we have not on our list.

The gentlemen of the Chamber of Commerce told me that they would canvass the town, explain to each and every person the two telephone question (which the Bell company has constantly harped upon in trying to defeat the Independent companies), and that, as we had practically all of the Bell subscribers—with hundreds that they have not—it would be very easy to explain to the public that two telephones would not be necessary in El Paso, and that, for their part, they intended to see that such was not the case; that the Bell telephone would be put out of the town, as they have long enough imposed upon the people with their miserable service.

We have had the united support of the newspapers. The editor of one paper asked me the day I left home if I would grant them the privilege of publishing our list of subscribers, that they might show the public that there was no fear of their ever having to keep two telephones.

I will relate a funny little incident that happened at the time of our franchise fight. The Bell company kept one of their state men (whom they employ for the purpose of fighting Independent companies that are trying to secure franchises) in El Paso for four months. They had, also, one of the prominent young attorneys in the town, and they were both at the council meetings every night for a year. I was there, too.

On this occasion, a dispute had arisen between the Bell

ANNEY M'ELROY BRETT.

representative and myself, regarding the reduction of prices in El Paso. He had made the statement that they had been reduced voluntarily. I had made the statement that they had never been reduced until I had started to work for a franchise, and that the reduction, then, was made through fear of competition, and with the one idea of trying to crush out competition, that they might go ahead and charge what they pleased; and I further stated that the reduction, up to that time, was only on party lines.

The gentlemen of the council, not being familiar with the telephone business, asked the question what was meant by "party lines." The Bell representative—a gentleman, by the way, very imposing in both form and manner, weighing over two hundred pounds—in all his talk before the council had, as it seemed to me, but one idea in view, and that was to impress them with the fact that he was representing the great Bell Telephone Company—that he was the "Great I Am"—and, when explaining the two-telephone questions he simply tried to impress them with the fact that the great Bell company was the only company; that they

had many miles of line, which was fast reaching out toward El Paso.

When he rose to answer the question that had been put to him, this night, he never once touched upon the point he started to explain, further than to state that party line service, under certain conditions, was the proper kind of service.

After he had sat down the gentlemen of the council looked at one another in rather a dazed manner—realizing that they had not heard what they expected to hear, and had not been enlightened, to any extent, upon party lines.

The mayor discovered my little boy—a little fellow, about six years old—who seemed to be laughing over the attempt of the Bell representative to explain party lines. Without meaning the slightest insult to the gentleman, the mayor said:

"Reggie, I think you can tell the gentlemen what party lines are."

Nothing daunted, the little fellow walked up to the mayor, who lifted him on to his desk. He rather caught his breath, to stop laughing, and remarked: "All I can tell about party lines is just this: When we lived in San Antonio, we lived at the house of a young woman who had a telephone that was No. 5 on a party line. A young widow, who lived next door to us, had a telephone that was No. 6 on the same party line. Every time the 'phone rang six times, the young lady in our house would run to it to hear what was being said."

The council seemed to feel quite satisfied with the explanation that party lines at least meant public service to all those on the line, if they were willing to listen and learn. The Bell representative felt so hurt and insulted, to have a six-year-old child called upon to explain what he had failed to explain, that he left the meeting, and it was his last appearance before the council.

Mr. L. W. Stanton, superintendent of the Federal Telephone Co. of Cleveland, followed with a paper on Improvements in Independent Telephony.

MR. STANTON'S PAPER.

Our several subjects are of vital importance to the Independent telephone movement, and it is only through the proper realization of those problems that the Independent companies may hope to maintain the standing that this great Independent movement has attained. Our competitor, the American Bell, has a well-organized and disciplined force of employes, standardized apparatus of the highest type, and years of practical experience.

The Independent telephone companies have popularized telephones and placed thousands of telephones in residences and places of business, undreamed of before the advent of Independent telephony. They have achieved wonders and astounded the telephone world with the progress they have made during the comparatively brief period of time they have been in the field. They have yet their crucial period to meet.

There are three giant problems—tariff, traffic and equipment—which are deserving of as much sound consideration as any problem in the industrial field to-day.

Public sentiment has been a very prominent factor in the Independent field, but it is becoming more and more apparent that the company giving the best service and the most courteous treatment will secure the business.

The discriminating public have favored the home companies on account of their origin and the conditions under which they were brought into existence. This protection has extended over a number of years, but the time will arrive when the Independent companies, even though they be owned locally, must demonstrate their ability to furnish as good or better services than their competitor. The writer is acquainted with several Independent exchanges in which the service is inferior to that of the Bell company, yet the public tolerate it, remembering the treatment they formerly received before the inauguration of the Independent companies. This will not always exist. The public is prone to forget.

The company furnishing the best service to the greatest number, at an equitable rate, will, unquestionably, do the greater business. For the Independent companies to bring about such conditions requires a far-reaching revision in their present tariff system, a change in their engineering and equipment, and attention to details in traffic, the like of which they have never known before.

In our larger cities there are thousands of families and hundreds of small tradesmen that cannot afford to pay for flat rate individual service, neither can the telephone company, from a financial standpoint, afford to reduce its rate to meet these requirements. The inevitable result is party lines and measured service. I know a great many are opposed to this class of service, some for reasons which are valid, and some for reasons which are thought to be valid, but which are not. There has been a great deal of prejudice against the party line, owing to poor apparatus and inferior traffic arrangements.

A great deal has been due to public sentiment, which is unjust to the telephone company and unjust to the subscriber who cannot afford individual metallic service. By the use of the party line, thousands of subscribers can be served that could not otherwise afford individual service. With a good system of four-party line selective, with the traffic details well worked out, this service, for the small user, is almost as good as individual service. You say that it works an injustice to the subscriber who has individual service. It is quite the reverse. It is optional with him whether he will use the party line or not, but in ninety-nine cases out of a hundred he is glad to have a chance to telephone to his party, even though it be over a party line.

Let us now look into the financial aspects of the party line. We will assume the exchange from which we draw our figures to be one of 5,000 lines, built at an average cost of $100.00 per line, and $25.00 extra for each additional party line 'phone, including the 'phone, interior wiring, line drops, etc. We will assume the rate for individual service to be $48.00 per year; $15.00 per year for operating individual service 'phones, and $7.50 per year to operate each additional party line 'phone. Figuring interest at 5 per cent and depreciation at 10 per cent on the amount invested. We find by referring to the chart that upon doubling the number of 'phones on the line and decreasing the rate one-quarter, we decrease the net revenue per 'phone, and increase the net revenue per line; what is most noticeable is that the net per cent earned on investment per line is greater for both two and four party line than for either a greater or less number, a point that should not be lost sight of in establishing party line rates is that a dollar or two difference in the rate makes considerable difference in the net per cent earned on the amount invested, as is shown by the two rates on the four and eighty party lines, while the above table lays down no special rules to work by, it calls attention to facts that should not be lost sight of.

From the foregoing we see that the party line is a success from a financial standpoint, and a necessity from the view that the company serving the greatest number of people, renders a service the more valuable, and will, therefore secure the business, if the service is kept up to the standard.

We will now look at the party line from a traffic and tariff standpoint, which is an exceedingly complexed problem. There are three principal objections to party lines:

First, the annoyance from the bells ringing when some one else is wanted; second, the frequent report of "line busy"; third, service is not private.

The first objection can be almost entirely eliminated on party lines of four or less, providing the equipment is of proper design and the operating is good.

The second is a more difficult problem. If there are

two or more parties on the line, with unlimited service, the line will frequently test "busy." To remedy this, some form of measured service will be necessary. While it is admitted that measured service adds complications, it is undoubtedly the most equitable method of charging. While there are several forms of measured service, there are none that entirely fill the requirements. Automatic apparatus either at the 'phone or on the switchboard is not satisfactory, for in the case the line called for should be busy, there would be a call registered without the party securing the service. With either a meter or slot machine placed at the 'phone it slows the service, for the operator must remain in on the line until the called for party is secured, and the calling party has registered or deposited the required coin. This also works a hardship on the party called for, as it is necessary to wait until the party calling deposits the coin or registers. The system of measured service, whether a meter is used, is also more expensive, inasmuch as it requires a visit to each 'phone to take the reading of the meter before a bill for service can be rendered.

The system in use in a number of the largest Bell exchanges and the one which gives the best general results, is where the operator marks down the number of the 'phone of the party calling, and in case the call is not completed she draws a line through that number. Each hour these sheets containing the record of the calls are collected and sent to the billing department.

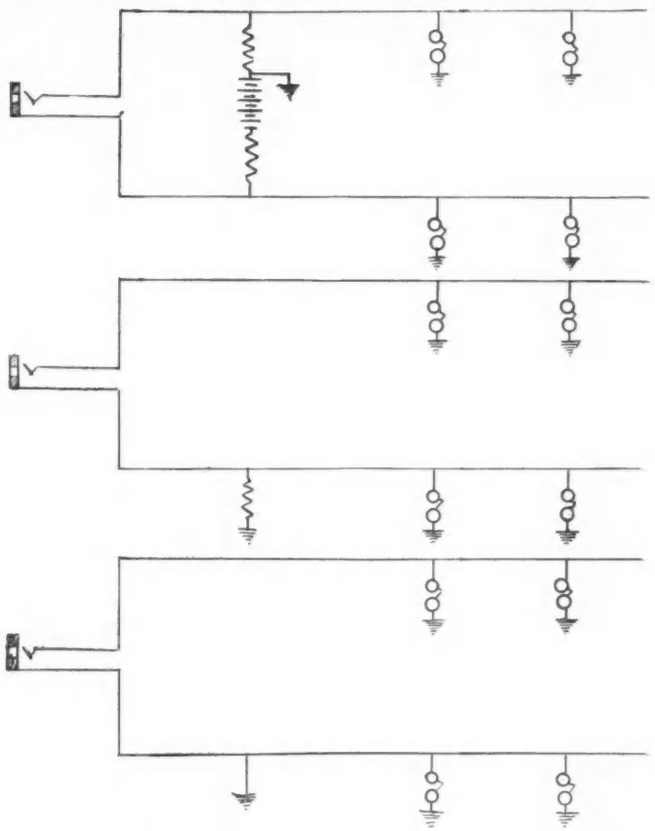
Measured service, handled in this way, gives the subscriber very prompt and efficient service. This class of measured service, used in connection with a four-party line, will give excellent results. Suppose you allow each party line subscriber 600 or 1,000 outgoing calls per year on a four-party line, or 1,200 to 1,800 on a two-party line, at a minimum charge, with a fixed rate per message for all additional calls; all incoming calls free. Handled in this way, the report, "line busy," will be no more frequent than it is with individual unlimited service; in fact, the calls will probably average less per four-party line than with unlimited individual lines.

In a peg count which the writer examined where there were nearly 5,000 party line 'phones, all of which were either measured or nickel service, the average call, per day, per 'phone, was 1.3.

In regard to secrecy or privacy of a properly designed party line 'phone, it is almost as private as an individual 'phone. With a lamp signal board and selective ringing, the different parties on the line have no means of knowing when a party is calling or being called, and if a line is in use they can readily hear another party come in on the line. With the three main objections just cited, handled as above described, the party line gives a very desirable service and comes within the reach of a class of patrons or users that would otherwise be barred. From the foregoing it is plainly evident that the party line has a mission of importance to fulfill.

Up to the present time the call for party line equipment has not been very great, and the Independent manufacturers who have done so well in furnishing equipment, have not given this subject the attention that it should receive in the future. One of the leading manufacturers is just placing on the market a four-party selective system which depends upon the number of frequencies to operate the bells. From the limited experiments the writer has had an opportunity to make, the system seems to possess valuable points over the pulsating bell type, which has been used by the Bell company.

Before party line service can become thoroughly commercial among the Independent companies, the manufacturers will have to revise their design of equipment. The following diagram illustrates very plainly the line circuit of most of the manufacturers. From these we see that either one or both sides of the line are permanently tied to the central battery, which is grounded. This makes four party selective signaling very difficult, if not impossible. While the Independent companies are beginning to realize the value of the party line, they need to equally realize the danger there is of very seriously impairing the efficiency of their present service. If inferior apparatus is used, or if the apparatus is not properly installed, or if the operating is not under proper discipline, the service will be such that the company will lose rather than gain by adopting party lines. One of the greatest needs of the Independent telephone interests is either for this association or a kindred association to take up, in a technical way, the practical subjects of traffic engineering and equipment. There are thousands of dollars being wasted through ignorance, which could be avoided to a considerable extent by action on the part of such an association. If Independent telephony is



to be a real force in this country, such an association must, sooner or later, be organized.

There is no progressive art in which the practical exponents do not get together and discuss the practical and technical problems which are sure to arise, and in such an industry as telephony, it is particularly desirable, for in no other industry does the equipment and welfare of one company so intimately affect the other. Being linked together as they are, or soon will be, by the vast network of long distance lines, to the end that one huge national system of inter-communication is established. With the millions there are invested and the opportunities there are open, it is a crime to the Independent telephone interests that a little closer union and more uniform equipment is not adopted. The day for long distance telephony is just in its infancy, and for the Independent companies to handle their share of the traffic and give the class of long distance service that will be demanded, they will be compelled to adopt a more satndard form of equipment.

The writer's experience on the United States Telephone Company's long distance lines is that where 20 volt and 40 volt common battery systems, made by different manufacturers, are connected, the results are unsatisfactory. So much so, in one case, where a 40 volt system was in-

stalled, the former toll business at that place was almost lost for a period, owing to the inefficiency of the system for long distance work. Later a change was made that remedied the condition to some extent, but the system has never given the service it should. The trouble just cited was not due to the fact that it was a 40 volt system, which voltage is probably nearer correct, but due to the fact that the system was improperly designed for receiving incoming toll business.

The above well illustrates why telephone apparatus should be standard. From the output on the various Independent manufactures there could be selected a line of high class apparatus that would be worthy of standardization.

Our competitor, the American Bell, has standardized apparatus, and the Independents, until they adopt standard equipment, will necessarily give an inferior class of service.

If a traffic and engineering association were formed, there are many subjects pertaining to engineering and traffic on which articles could be written and thoroughly discussed, which would be of inestimable value to the Independent movement.

Any member attending such an organization for a so-called "good time," instead of a desire to contribute towards the material welfare of the body and the interests it represents, should be dropped from the association.

Mr. C. E. Wells of Marion, Kansas, read a paper on "The Independent Telephone Situation in the Southwest."

MR. WELLS' PAPER.

The subject assigned to me is certainly broad enough to suit the most exacting. Even with the Northwestern and Southwestern territory covered by the papers of the brothers from Minneapolis and San Antonio, there still remains so much to be covered that in attempting to prepare a paper that would do it justice I am reminded of the fable of the frog that attempted to emulate the ox in size. The fable states that the frog "busted." As I have been "busted" to all intents and purposes ever since I went into the telephone business the fate of the frog has no terrors for me. Yet, so far as actual information in regard to existing conditions is concerned, this paper will, perforce, be confined to the territory embraced in and contiguous to the state of Kansas.

Almost any telephone man (with the healthy imagination common to the species) can tell all about the conditions existing in the telephone field in any part of the universe,—providing he is telling it to people who don't know anything about it. I am under the impression, however, that this paper will be read in the presence of men who "have been around some," and that it will be necessary, therefore, that I keep at least in the vicinity of the facts. This, you will all agree, is a serious handicap, and will have the effect of abridging this paper materially.

COMPARATIVE DATA—PARTY LINE SERVICE—5000 LINE EXCHANGE.

No. of Phones Per Line.	Av. Cost Per Line.	Rental Per Line. Per Year.	Cost to Operate Per Line.	Interest on Investment Per Line.	Depreciation 10% Per Line.	Total Cost Opr., Int. and Deprec. Per Line.	Net Earning Per Line.	Net Earning Per Phone.	Net Per Cent Earned on Investments Per Line.
1	$100	$48	$15	$5	$10	$30	$18	$18	$18
2	125	36-72	22.50	6.25	12.50	41.25	30.75	15.62	24+
4	175	27-108	37.50	8.75	17.50	63.75	44.25	11.06	25+
		24-96					32.25	8.03	18+
8	275	20-160	67.50	13.75	27.50	108.75	51.25	6.41	18.6
		18-144					35.25	4.40	13.—

The problem of giving long distance service makes such an organization doubly necessary. If the Independents expect to handle long distance business in an up-to-date manner, deriving the greatest amount of revenue from the capital invested, building their connections by ticket wire and leasing their wires to brokers and large corporations to use for telegraph, while the telephone company is using the same for telephone purposes, considerable forethought and sound engineering will be required.

If the long distance trunk lines are to be built by different companies, they should consult each other, decide upon the class of construction and equipment, and, more important yet, the location of their relay or switching stations; I mean, locations along the trunk lines where testing for trouble is done, where operators are located for switching purposes, and where telegraph apparatus, such as relays, repeaters, Morse panels, batteries, etc., are located for handling leased wire work. The proper location of these switching stations is a very important matter. They should be located a certain distance apart to get the best results from the telephone apparatus. They should be located at junction points in the east and west and north and south trunk lines. This location is very important, from three points of view. It is very important from a view of economically and properly handling the Morse telegraph. It is important from the fact that the operators should be able to switch their messages to any point of the compass; and third, it saves the expense of building and maintaining additional switching stations. From the foregoing I am in hopes that the Independent companies will realize the absolute necessity of an association to solve the problems that cannot be solved by each company working independently.

Mr. Stanton's paper was discussed by Mr. J. Brien of the Keystone Telephone Co. of Philadelphia, who said that his company had 12,000 five-year contracts already signed.

From time immemorial the state of Kansas has received columns of advertising in the eastern press. Its grasshoppers, its drouths, its cyclones, its hail stones, its whiskers, its sockless politicians and its Carrie Nations. All these, and much more, have been dilated upon with charming liberality and great eloquence.

In the publication of these items of breathless interest some modest facts have been overlooked to a certain extent. For instance, we raise more wheat and fewer illiterate children than any other state on earth, and, as conclusive proof that we are sufficiently civilized to be entitled to self government, I make the assertion that we have a larger proportion of independent telephones in use, for each Bell instrument, than any other commonwealth on the map.

The Kansas climate, as you have doubtless heard, is not noted as being particularly adapted to the growth of monopoly in any form. There seems to be something in this prairie air, however, that fosters the independent telephone business.

At the expiration of the fundamental patents, and the inception of the independent telephone movement, the Missouri and Kansas Telephone Co. (the Bell lessees in this territory) were not very prompt in making extensions and covering their ground. I believe that this fact (as well as the climate) had something to do with the present wonderful development of the independent field in this state.

I believe that the first independent exchange to enter the field in this state was the Topeka plant, which was promoted and built in 1894 and 5. This plant, however, labored under serious difficulties from the start. The Harrison apparatus was used. The Bell people had no one else to fight at that time, and were enabled to devote all their attention to it. The common mistake was made of attempting to build a plant with too little capital. They became

embarrassed, their securities falling into the hands of the enemy, were foreclosed, and the plant dismantled.

At the time the failure of the Topeka plant was felt to be a severe blow to the independent interests of the state. The jubilation of the enemy found vent in many newspaper articles, all pointing to the figurative placard which they had posted round about the confines of the telephone field, "Sacred to the Bell." The plant above mentioned is the sole and only case of failure of an independent plant in this territory. The permanent development of the independent movement here, as is the case generally elsewhere, began in the smaller towns which were not occupied by the Bell exchanges, although the Salina plant, now one of the largest in the state, was built in 1895. This year marked the construction of the first independent toll line in the state, built by the same company. From that time on the movement has gathered momentum seemingly with every month. By the close of the year 1899 practically all the territory which would justify development, was occupied, and competing exchanges were in operation or course of construction in many of the larger towns. During the past three years, the Bell strongholds have fallen, one by one, until at this writing, with the exception of Lawrence and Kansas City, Kansas, every city in the state is occupied by the independent forces. A franchise is now pending at Lawrence with the prospect of favorable action and the commencement of construction in the next sixty days. The Kansas City, Kan., plant will, of course, be developed by the Kansas City Home Telephone Co. in connection with the Kansas City, Mo., exchange, now building.

When I have stated that the independent exchanges occupy every town in the state of 1,000 people or over (and many as small as four or five hundred), it does not carry a full conception of the real preponderance of the independent strength.

While the Bell lessees have extended and improved their toll lines during the past six years, I am of the opinion that their exchange telephones have not increased in number to any material extent. The remarkable feature of the exchange competition in this territory, is the uniform and complete success of the independent plants, particularly in the central portion of the state. For instance, the Salina Telephone Co., mentioned above, whose exchange was begun in 1895 with some 75 'phones in competition with the Bell exchange of about the same size. After six years of competition, during which time the Bell people have solicited telephones to be furnished absolutely free, while the independent plant has maintained its original rates of $15 and $30, the former now operate some thirty telephones and the latter 560. Practically the same conditions obtain in Abilene, Manhattan, Junction City, Ottawa and numerous other towns of from five to ten thousand people. Barring some three or four of the larger towns in the eastern part of the state, the Bell people have been practically driven out of the exchange business.

The exchange situation in this territory may be summarized thus: The Bell people have, outside of Kansas City, perhaps half a dozen exchanges worthy of the name, such as Topeka, Atchison, Leavenworth, Wichita and Emporia, aggregating possibly 4,000 telephones, with perhaps another thousand scattered in the remnants of exchanges at various points.

The Kansas Independent Telephone Association, with a membership of some sixty companies had in operation at the time of the last report, nearly 19,000 telephones. It is safe to presume that the present number is not far short of 20,000. This represents, as nearly as I am able to compute, about 60 per cent of the total number of independent instruments in use in the same territory. If these figures are even approximately correct, and I believe them to be conservative, there are at least six independent telephones in use by operating companies in this territory to every Bell instrument. Many well posted telephone men of the state with whom I have talked on the subject maintain that this proportion is not large enough, and that including the farmer lines (of which we have comparatively few as yet) that there are ten to one.

The writer is of the opinion that the uniform success of the independent exchanges is due in a considerable measure to the fact that the local independent toll lines cover the territory so thoroughly. While few distinctively long distance lines have been built by the independents as yet, there is scarcely a postoffice or hamlet that is not reached by their local lines, and the service is uniformly good in a radius of 75 miles, and as all experienced telephone men are aware, this will cover probably 85 per cent of the telephone tolls from any given point.

Of course the need of good long distance lines is seriously felt, and is in fact being supplied quite rapidly. The lack of connection with Kansas City, the commercial center of this territory, has heretofore been a serious check to the construction of long distance lines. Now that the Kansas City plant is assured and under construction, considerable copper metallic line is being constructed, and in the belief of the writer, another year will see the construction of a comprehensive system of long distance lines, connecting this territory with Kansas City and the other Missouri river gateways. Of these cities, Kansas City is the "chief stone of the corner" in the system of the Missouri & Kansas Telephone Company. It is the key to the long distance toll business of this territory, and they have fought with desperation to prevent the entrance of a competing exchange, realizing that, with the local exchange service in all the surrounding tributary territory in the hands of the independents, that the entrance of an independent exchange to Kansas City would spell trouble, both for their exchange and toll earnings. Several proposed opposition plants were strangled at some stage of their promotion, and it had become to be feared that we would never realize our desire of an independent exchange in Kansas City. However, during the past season the matter was taken in hand by Barber and Brailey, and since that time those independent telephone men who were familiar with the reputation of those gentlemen have felt a reasonable assurance that the plant would be built.

That this confidence was well placed is evidenced by the fact that the work has now so far progressed upon the conduit system as to practically insure the completion of the plant within a year. A new up-to-date central energy system (completed last fall) has arisen upon the ruins of the old Harrison exchange in Topeka, and is rapidly increasing in size, while charging the same rates as the Bell. Wichita, the metropolis of southern Kansas, is now building a model central energy plant with the prospect that they will begin business with more subscribers than the old company ever had. On the whole the independent people of this territory can say to the brethren of the eastern and middle states, "we're coming father Abraham, some hundred thousand strong."

As stated in the beginning of this paper, we have felt impelled to confine our paper chiefly to Kansas and immediate vicinity, feeling unable to speak intelligently of the conditions in a wider territory.

It may be said, however, that the situation in Oklahoma is much the same as in this state, at least fully as favorable to the independent interests. The territory is completely occupied by their exchanges and toll lines, and they are without exception, in a very prosperous condition.

In the state of Nebraska, owing to the fact that the Nebraska Bell Telephone Co. were very active in the early days of the independent movement, in extending their toll lines and covering their territory, the independent movement has not reached the magnitude that it has in this state. However, the independent companies there are aggressive, and are pushing the war into the enemy's camp. During the past year there has been unusual activity there and the

towns of the state are being rapidly occupied. The independent telephone people of Iowa are too well known to require any mention at my hands. The writer helped to organize and build one of the earliest plants in that state, that of the Boone County Telephone Co., and is personally familiar with most of the plants and prominent independent men in the state. However, they have a way of doing so much up there in so short a time that I would not dare even make a guess at what they have accomplished in the past three years. It may be safely assumed that they are also "coming Father Abraham."

In conclusion, a word as to the Kansas State Association. While recently organized it is receiving the cordial support of a great majority of the legitimate operating companies of the state and contiguous territory. It is the intention to make it an organization for the protection of the interests of its members, in fact, as well as in name. The loyal support already accorded it by its members has enabled it to accomplish much good in the settlement of differences between the various operating companies, as well as to take steps to thwart schemes directed against the general welfare.

It is the humble opinion of the writer that the independent telephone interests of the United States have much more to fear from internal dissensions and jealousies, than from the competition of the Bell company, and that for that reason harmony should be fostered at all hazards.

In closing this somewhat rambling document I cannot forbear to express the deep appreciation that exists with all well posted telephone men of this section of the inestimable value of the service rendered by the National Association to the interests of independent telephony in the United States. Through its medium, it has been possible to harmonize and combine the interests of the opposition for the defense of patent suits, and in other ways, so that it may be truly said that the National Association is, to a large extent, responsible for the present satisfactory condition of the independent field.

May the Association and the great interests it represents live long and prosper.

Professor Goldsborough then gave a short account of the course of telephone engineering taught at Purdue University, Lafayette, Indiana, and said that it was the purpose of the university to give a thorough, practical training to students in the telephone department.

At the afternoon session of Thursday the following officers were elected for the ensuing year:

President, James M. Thomas, Cleveland, Ohio; first vice-president, Hugh Dougherty, Bluffton, Ind.; second vice-president, C. E. Stinson, Rochester, N. Y.; third vice-president, W. H. Durin, Cedar Rapids, Iowa; secretary and treasurer, J. B. Ware, Detroit, Mich.; first assistant secretary, C. E. Wilson, Philadelphia, Pa.; second assistant secretary, E. L. Barber, Wauseon, Ohio; third assistant secretary, T. B. Lee, Pittsburg, Pa.

Advisory Board—James M. Thomas, Cleveland, Ohio; S. P. Sheerin, Indianapolis, Ind.; H. D. Critchfield, Cleveland, Ohio; E. B. Fisher, Grand Rapids, Mich.; Samuel E. Wayland, Scranton, Pa.; H. C. Young, Columbia, Pa.; E. E. Webster, Minneapolis, Minn.

Executive Committee—Illinois, George Fair, Chrisman; Indiana, George F. Frier, Muncie; Iowa, Dr. H. S. Herr, Ottumwa; Kentucky, J. A. Armstrong,, Louisville; Louisiana, L. H. Lancaster, Thibodaux; Michigan, R. F. Johnson, Saginaw; Maine, L. W. Goudy, Portland; New Jersey, John J. Burleigh, Camden; New York, C. L. Ingham, Buffalo; Ohio, Frank L. Beam, Columbus; Pennsylvania, C. W. Kline, Hazleton; Minnesota, E. E. Webster, Minneapolis; Texas, Mrs. Annie McElroy Brett, El Paso; Virginia, N. C. Watts, Staunton; West Virginia, W. K. Cummings, Wellsburg; Wisconsin, Richard Valentine, Janesville; Kansas, C. E. Wells, Marion.

After the election of officers the convention attendants took a trip to Atlantic City, N. J., at the invitation of the entertainment committee and thoroughly enjoyed the brief visit to the seashore.

A large number of visitors inspected the switchboards of the new Keystone Telephone Company (Independent) at Philadelphia. The Keystone exchange is one of the largest Independent exchanges in the United States and is thoroughly modern in equipment.

Exhibits were made at the convention by the Stromberg-Carlson Telephone Manufacturing Co. of Chicago, the Kellogg Switchboard and Supply Co. of Chicago, the Illinois Electric Specialty Co. of Chicago, the North Electric Co. of Cleveland, the Sumter Telephone Manufacturing Co. of Sumter, South Carolina; the Swedish-American Telephone Co. of Chicago, the Lambert-Schmidt Telephone Manufacturing Co. of New York, N. Y.; New Haven Novelty Machine Co., New Haven, Conn.; Maybury-Holmes Telephone Company, Medford, Mass.; Russell-Tomlinson Electrical Co., Danbury, Conn.; James G. Biddle of Philadelphia, American Vitrified Conduit Co. of New York, D. & W. Fuse Co. of Providence, R. I. A number of other manufacturers distributed souvenirs.

The list of those in attendance at the conventions as furnished is as follows:

Hon. James M. Thomas, President Independent Telephone Association, Cleveland, Ohio; H. C. Young, First Vice-President Independent Telephone Association, Columbia, Pa.; C. E. Stinson, Second Vice-President Independent Telephone Association, Rochester, N. Y.; W. H. Durin, Third Vice-President Independent Telephone Association, Cedar Rapids, Iowa; Hon. S. P. Sheerin, Secretary and Treasurer, Independent Telephone Association, Indianapolis, Ind.; J. B. Ware, First Assistant Secretary Independent Telephone Association, Detroit, Mich.; C. E. Wilson, Second Assistant Secretary Independent Telephone Association, Philadelphia, Pa.; T. B. Lee, Third Assistant Secretary Independent Telephone Association, Pittsburg, Pa.; Hon. Hugh Dougherty, Bluffton, Ind.; Hon. H. D. Critchfield, Cleveland, Ohio; Hon. E. B. Fisher, Grand Rapids, Mich.; Samuel E. Wayland, Scranton, Pa.; W. B. Seaton, Ashland, Ky.; George W. Beers, Fort Wayne, Ind.; George W. Fair, Chrisman, Ill.; E. A. Frazee, Connersville, Ind.; A. T. Pressen, Iowa City, Iowa; J. A. Armstrong, Louisville, Ky.; L. H. Lancaster, Thibodaux, La.; John J. Burleigh, Camden, N. J.; Ed. L. Barber, Wauseon, Ohio; Vinton A. Sears, Boston, Mass.; Hon. C. W. Kline, Hazelton, Pa.; C. H. Judson, Minneapolis, Minn.; Mrs. Annie McElroy Brett, El Paso, Texas; R. F. Hogsett, Virginia; W. K. Cummings, Wellsburg, West Va.; I. H. Moulton, La Crosse, Wis.; Wm. W. Olheiser, Manager Eastern Telephone and Telegraph Co., Camden, N. J.; Hon. Wm. J. Thompson, Gloucester, N. J.; E. A. Armstrong, Camden, N. J.; Hon. Robt. H. Foerderer, President Keystone Telephone Co., Philadelphia, Pa.; W. H. Clark, Treasurer Keystone Telephone Co., Philadelphia, Pa.; W. W. Wharton, Assistant Treasurer Keystone Telephone Co., Philadelphia, Pa.; R. M. Eaton, Assistant General Manager Keystone Telephone Co., Philadelphia, Pa.; James Breen, Supt. Contract Department, Keystone Telephone Co., Philadelphia, Pa.; John H. Reid, American Electric Telphone Co., Chicago, Ill.; Philadelphia office, H. P. Clausen, General Superintendent American Electric Telephone Co., Chicago, Ill.; Paul W. Bossert, Manager Philadelphia Office, Kellogg Switchboard and Supply Co., Chicago, Ill.; F. J. Dommerque, Kellogg Switchboard and Supply Co., Chicago, Ill.; A. M. Worstall, Secretary Inter-State Telephone Co., Trenton, N. J.; F. A. Demorest, General Supt. Inter-State Telephone Co., Trenton, N. J.; John M. Mack, Philadelphia; Michael Murphy, Philadelphia; Jacob E. Ridgway, Vice-President Keystone Telephone Co., Philadelphia; Jos. C. Perry, Keystone Telephone Co., Philadelphia; John C. Sager, Chief Electrical Bureau, Philadelphia;

Edward Burk, Manager Electrical Bureau, Philadelphia; Hon. Samuel Ashbridge, Mayor of Philadelphia; H. W. Webb,General Manager Maryland Telegraph and Telephone Co., Baltimore, Md.; E. H. Bouton, President Maryland Telegraph and Telephone Co., Baltimore, Md.; H. C. Roberts & Co., Philadelphia; John Mustard, H. C. Roberts & Co., Philadelphia; H. G. Kepler, Walker & Kepler, Philadelphia; C. E. Trump, Secretary Novelty Electric Co., Philadelphia, Pa.; O. H. Larwill, Purchasing Agent Keystone Telephone Co., Philadelphia, Pa.; Samuel Barnett, Electrical Engineer, United Gas Imp. Co., Philadelphia, Pa.; Frank Maize, First Assistant Manager, Electrical Bureau, Philadelphia, Pa.; Frank A. Wunder, Special Agent Keystone State Telephone Co., Philadelphia, Pa.; E. B. Bartram, Alfred E. Moore Insulated Wire, Philadelphia, Pa.; W. W. Pawling, Alfred F. Moore Insulated Wire, Philadelphia, Pa.; Alfred F. Moore, Alfred F. Moore Insulated Wire, Philadelphia, Pa.; Mr. Curtis, The Inquirer, Philadelphia, Pa.; Mr. Hansen, The North American, Philadelphia, Pa.; Mr. Russell, The Philadelphia Record, Philadelphia, Pa.; Mr. Wanamaker, The Times, Philadelphia, Pa.; Mr. Viskmiskki, The Press, Philadelphia, Pa.; Mr. McKenna, The Public Ledger, Philadelphia, Pa.; Mr. Hillis, The Bulletin, Philadelphia, Pa.; Mr. Rook, The Evening Telegraph, Philadelphia, Pa.; Mr. Fitzgerald, The Item, Philadelphia, Pa.; J. W. Marsh, Vice-President and General Manager Standard Underground Cable Co., Pittsburg, Pa.; T. E. Hughes, Manager Standard Underground Cable Co., Philadelphia, Pa.; G. L. Wiley, Manager Eastern Sales Department Standard Underground Cable Co., New York, N. Y.; A. B. Sourman, Manager Northeastern Sales Department Standard Underground Cable Co., Boston, Mass.; P. H. W. Smith, Assistant Manager Standard Underground Cable Co., Pittsburg, Pa.; W. J. Watson, American Electric Works, New York, N. Y.; Louis J. Costa, Walker & Kepler, Philadelphia, Pa.; Jas. P. McQuade, National Conduit & Cable Co., New York, N. Y.; Mr. Eckert, National Conduit & Cable Co., New York, N. Y.; Mr. Beylard, National Conduit & Cable Co., Philadelphia, Pa.; W. L. Doyle, Jno. A. Roebling's Sons Co., Trenton, N. J.; U. G. Tingley, Jno. A. Roebling's Sons Co., Trenton, N. J.; D. F. Ivins, Jno. A. Roebling's Sons Co., Trenton, N. J.; C. B. Cushing, Jno. A. Roebling's Sons Co., Trenton, N. J.; Thomas L. Townsend, Vallee Bros.' Electrical Co., Philadelphia, Pa.; Kempster B. Miller, Kellogg Switchboard & Supply Co., Chicago, Ill.; J. C. Belden, Kellogg Switchboard & Supply Co., Chicago, Ill.; A. E. Barker, Kellogg Switchboard & Supply Co., Cleveland, Ohio; Arthur B. Kratz, Kellogg Switchboard & Supply Co., Philadelphia, Pa.; Wm. A. Wynne, Raleigh Telephone Co., Raleigh, N. C.; W. C. Ervin, Secretary Burke Co. Telephone Co., Morgantown, N. C.; W. E. Nicholson, Manager Home Telephone Co., Crawfordsville, Ind.; Harvey Myers, President Memphis Telephone Co., Memphis, Tenn.; Nathl. N. Spofford, Manager Peoples Telephone Co., Haverhill, Mass.; E. D. Schade, Secretary & General Manager Johnstown Telephone Co., Johnstown, Pa.; Dr. W. H. Walters, Pocomoke Telephone Co., Pocomoke City, Md.; S. J. Bear, Western Agent American Electrical Telephone Co., Topeka, Kan.; Dr. A. J. Stowe, President Northeastern Telephone Co., Rush City, Minn.; J. D. Markham, Secretary Northeastern Telephone Co., Rush City, Minn.; F. W. Schirmeyer, Secretary Citizens Telphone Co., Decatur, Ind.; C. W. Stiger, Stromberg-Carlson Telephone Mfg. Co., Chicago, Ill.: Eugene L. Brown, Stromberg-Carlson Telephone Mfg. Co., Chicago, Ill.; J. J. Nate, Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill.; H. A. Harvey, President United Telephone & Telegraph Elec. Co., Chicago, Ill.; Willard T. Black, Vice-President United T. & T. Elec. Co., Chicago, Ill.; Hon. R. F. Bronssard, M. C., Vice-President The Telephone Co. of America, New Iberia, La.; Jerome Penn, Vice-President & General Manager The Washington Home Tel. Co., Washington, D. C.; J. J. Conner, Maryland T. & T. Co., Baltimore, Md.; J. C. Crawley, Maryland Telephone & Telegraph Co., Baltimore, Md.; W. F. Lauback, Genral Manager Akron Peoples Telephone Co., Akron, Ohio; Mr. Fox, Independent Tel. Ass'n of U. S. A., Indiapapolis, Ind.; Miss McFall, Independent Tel. Ass'n of U. S. A., Indianapolis, Ind.; Edw. McCoy, Philadelphia, Pa.; C. E. Austin, Frontier Telephone Co., Buffalo, N. Y.; C. L. Ingham, Frontier Telephone Co., Buffalo, N. Y.; B. G. Hubbell, Consolidated Telephone Co., Cleveland, Ohio; L. Sands, Williams-Abbott, Cleveland, Ohio; George R. Fuller, Rochester Telephone Co., Rochester, N. Y.; T. L. Pryor, New York. N. Y.; W. H Bryant, Home Tel Co., Mobile, Alabama; F. C. Manning, Sumpter Tel. Mfg. Co., Sumpter, S. C.; B. P. Nungesser, Nungesser Elec. Battery, Cleveland, O.; C. Seyler, Hubbard & Co., Pittsburg, Pa.; Frank G. Jones, American Elec. Fuse Co., Chicago, Ill.; H. Grant Thompson, New Haven Novelty Machine Co., New Haven, Conn.; A. E. Dobbs, Electric Review, New York, N. Y.; Fred DeLand, Kansas Long Distance Tel. & Tel. Co., Topeka, Kan.; C. M. Hamilton, F. Bissell Co., Toledo, O.; H. H. Robinson, U. S. Tel. Co., Cleveland, O.; Chas. T. Walker, Electric World Engineer, Philadelphia, Pa.; W. A. Hopkins, Jr., Erner-Hopkins Co., Columbus, O.; R. M. Hirst, Standard U. G. Cable Co., Philadelphia, Pa.; Frank L. Perry, Western Electrician, Chicago, Ill.; John J. Flanagan, Western Electrician, Chicago, Ill.; G. B. Rudy, York Tel. Co., York, Pa.; W. E. Doolittle, Sterling Elec. Co., Lafayette, Ind.; E. B. Overshiner, Swedish American Co., Chicago, Ill.; F. B. Patton, Illinois Elec. Specialty Co., Chicago, Ill.; A. J. Rousseau, Stromberg-Carlson Co., Chicago, Ill.; R. C. Hull, Elec. Storage Battery Co., Philadelphia, Pa.; Frank R. White, Electricity Newspaper Co., New York, N. Y.; O. C. Snider, Secretary, Kansas City Home Tel. Co., Kansas City, Mo.; R. F. Johnson, Secretary and General Manager Valley Tel. Co., Saginaw, Mich.; R. B. McPherson, Livingston Home Tel. Co.; Howell, Mich.; G. W. Swan, John A. Roebling's Sons Co., New York, N. Y.; E. L. Reynolds, Elec. Storage Battery Co., Philadelphia, Pa.; Jas.G. Biddle, Electrical and Scientific Instruments, Philadelphia, Pa.; Cecil P. Poole, Editor, American Electrician New York; Elmer E. Smith, American Tel. Journal, Chicago, Ill.; Chas. G. Stevens, Iron and Steel, Chicago, Ill.; Harry W. Johnson, Columbia Tel. Co., Columbia, Pa.; J. G. Ihmsen, General Manager American Elec. Tel. Co., Chicago, Ill.; E. F. Kirkpatrick, Macroy Clay Works, Chicago, Ill.; G. H. Gharky, Consulting Engineer, Philadelphia, Pa.; L. G. LeBourveau, Sumpter Tel. Mfg. Co., Sumpter, S. C.; Thomas Martindale, Trades League of Phila., Philadelphia, Pa.; N. B. Kelly, Secretary Trades League of Phila., Philadelphia, Pa.; E. E. Webster, Twin City Telephone Co., Minneapolis, Minn.; E. F. Edmunds, American Telephone Journal, New York, N. Y.; Harry Huskey, Helios Upton Co., Philadelphia, Pa.; W. H. McDonough, American Telephone Journal, New York, N. Y.; Raymond Hendrickson, The North Electric Co., Cleveland, O.; J. R. Wilson, Crocker-Wheeler Co., Ampere, N. J.; P. J. Hertz, Illinois Electric Specialty Co., Chicago, Ill.; D. F. Lafean, President York Tel. Co., York, Pa.; Newman H. Holland, Mayberry Homes Selective Signaling and Locking System, West Medford, Mass.; Bleecker S. Barnard, American Vitrified Conduit Co., New York, N. Y.; Geo. S. DuPerow, Engineer, Federal Tel. Co., Cleveland, O.; Allen C. Morse, Federal Tel. Co., Cleveland, O.; H. B. McNeal, "Telephony," Chicago, Ill.; W. W. Townsend, North American Tel. & Tel. Co., Chicago, Ill.; S. C. Kissner, Citizens Tel. Co., Coshocton, O.; J. M. Knox, Varley Duplex Magnet Co., New York, N. Y.; J. H. Scofield, Duchess Co Tel. Co., New York, N. Y.; J. B. Rhodes, Zanesville Tel. & Tel. Co., Zanesville, O.; F. W. Wilcox, Edison Lamp Works, Harrison, N. J.; H. Westberry, Edison Lamp Works, Harrison, N. J.; Frank F. Sapp, The North Electric Co., Cleveland, O.; R. E. Russell, Western Penna. Tel. Co., Dowingtown, Pa.; W. H.

Butler, Kent Home Tel. Co., Kent, O.; H. B. Gay, Electric Storage Battery Co., Baltimore, Md.; F. E. Mayberry, Mayberry Home Party Line System, West Medford, Mass.; R. S. Pullen, Leon W. Pullen Electric Co., Philadelphia, Pa.; W. S. Sisson, D. & W. Fuse Co., Providence, R. I.; H. G. Braynard, Western Electric Co., Philadelphia, Pa.; Geo. Breed, Drake Breed Co., Philadelphia, Pa.; A. E. Bainbridge, Philadelphia, Pa.; C. A. Mans, Anthracite Tel. Co., Hazleton, Pa.; Fred May, Peoples Tel. Co., Hazleton, Pa.; J. E. Zeluff, Louisville Home Telephone Co., Louisville, Ky.; W. K. Beard, "American Electrician," Philadelphia, Pa.; A. Atwater Kent, Atwater Kent Mfg. Works, Philadelphia, Pa.; Russell Howland, "Electrical Review," New York, N. Y.; S. A. Duval, Williams-Abbott Electric Co., Cleveland, O.; T. W. Warner, Warner Electric Co., Muncie, Ind.; John H. Shaper, J. Edward Ogden Co., New York, N. Y.; W. Elwell Goldsborough, Universal Exposition Commemorating the Acquisition of the Louisiana Territory, St. Louis, Mo.; S. M. Granger, Zanesville Tel. & Tel. Co., Zanesville, O.; H. L. Reber, General Manager Kinloch Tel. Co., St. Louis, Mo.; Chas. R. Meyers, Helios-Upton Co, Philadelphia, Pa.; Mortimer L. Godkin, "Western Electrician," New York, N. Y.; P. J. Eubanks, Harrison Const. Co., Cincinnati, O.; Samuel B. Rawson, Rawson Electric Co., Elyria, O.; W. D. Barnard, United Tel. & Tel. Co., Philadelphia, Pa.; F. M. Potter, Jr, Syracuse Tel. Co., Syracuse, N. Y.; Irving H. Griswold, American Const. & Trading Co., Elyria, O.; H. B. Coho, Electric Storage Battery Co., Philadelphia, Pa.; Bruce Ford, Electric Storage Battery Co., Philadelphia, Pa.; Leon W. Pullen, Leon W. Pullen Electric Co., Philadelphia, Pa.; R. A. Whittick, Keystone Telephone Co., Philadelphia, Pa.; N. C. Wetts, Staunton Mutual Tel. Co., Staunton, Va.; R. L. Andrews, Farmington Valley Tel. Co., New Britain, Conn.; B. F. Case, Farmington Valley Tel. Co., New Britain, Conn; C. E. Starr, Inter-State Tel. Co., Philadelphia, Pa.; J. J. Estabrook, Holtzer-Cabot Electric Co., Boston, Mass.; T. C. Martin, "Electrical World Engineer," New York, N. Y.; J. M. Wakeman, "Electrical World Engineer," New York, N. Y.; A. G. Scholl, Consolidated Tel. Co. of Pa., Mifflintown, Pa.; N. E. Robb, United Tel. & Tel. Co., Williamsport, Pa; Harry J. Arnold, Eastern Electric Const. Co., Philadelphia, Pa.; E. M. Yarnall, Secretary and Treasurer Eastern Elec. Const. Co., Philadelphia, Pa.; K. G Martin, "Electrical World and Engineer," New York, N. Y.; S. C. Platt, Kellogg Switchboard & Supply Co., New York, N. Y.; D. M. Bliss, Hotzer-Cabot Electric Co., Brookline, Mass.; Loan J. Marsh, Contracting Electrician, Philadelphia, Pa.; F. Herboth, Keystone Telephone Co., Philadelphia, Pa.; W. B. McCurdy, American Elec. Fuse Co., New York, N. Y.; H. F. Sanville, Waclark Wire Co., New York, N. Y.; R. D. Allen, Smethhurst & Allen, Philadelphia, Pa.; W. A. Smethhurst, Smethhurst & Allen, Washington, D. C.; Geo. G. Glenn, Postal Office, Philadelphia, Pa.; Geo. W. Allen, Philadelphia, Pa.; C. H. North, North Electric Co., Cleveland, O.; W. J. Watson, American Electrical Works, New York, N. Y.; S. B. Condit, Jr., S. B. Condit, Jr., & Co., Boston, Mass.; F. W. Street, Quaker City Cab Co., Philadelphia, Pa.; S. L. Reese, Stromberg-Carlson Tel. Mfg. Co., Pittsburg, Pa.; Eugene I. Brown, Stromberg-Carlson Tel. Mfg. Co., Pittsburg, Pa.

TELEPHONE SERVICE IN JAPAN.

The Japanese telephone service is regulated by the Department of Communications. At Kobe there is a telephone exchange which, at the end of October last, had 1,176 subscribers. There is a telephone trunk service available between Kobe and Tokyo, a distance of 377 miles; Kobe and Yokohama, 350 miles; Kobe and Nagoya, 161 miles.

WELL KNOWN HEADS OF WELL KNOWN HOUSES.

William O. Meissner, president of the Acme Electric Company, of Chicago, is an example of what hard, honest work and careful application to business will do for an ambitious young man. Mr. Meissner was born in the Kingdom of Saxony, Germany, April 15, 1867, and during his childhood and early youth he attended the schools in his native city. As a boy he became interested in electricity and telephony, devoting also considerable time to the study of chemistry and physics. In 1886 he came to America and engaged for several years in practical work in a number of electrical and machine shops, learning the practical details of the electrical and telephone business. He was associated for a time with the Knapp Electrical Works, in the responsible position of superintendent. In 1894 Mr.

WILLIAM O. MEISSNER.

Meissner founded the Washington Electric Company, the pioneer builder of Independent switchboards in the west.

The Acme Electric Company was organized about two years ago, and since has steadily grown and prospered, enjoying at the present time a very large and profitable business. The Acme Company manufactures a complete high-grade line of telephone apparatus, the sale of which is rapidly increasing.

In the work of upbuilding the Acme Electric Company Mr. Meissner has been ably assisted by Mr. E. J. Walsh, his associate in the business, and it is doubtful if there is any company in the Independent manufacturing business whose management is in the hands of harder working or more conscientious gentlemen than Mr. Meissner and Mr. Walsh. The success of the Acme Electric Company is a deserved tribute to the men who have labored so earnestly for its prosperity and high business standing.

Telephony.

AN ILLUSTRATED MONTHLY TELEPHONE JOURNAL

Published by

The TELEPHONY PUBLISHING CO.

H. B. McMEAL, President.

MANHATTAN BUILDING, CHICAGO, ILL.

Telephone Harrison 2951.

C. A. KENWORTHY, Adv. Mgr.

EDWARD J. MOCK, Bus. Mgr.

New York Office, Morton Bldg.

European Office, 2 Exeter St., Strand, London, W. C.

Cleveland Office, Williamson Bldg.

SUBSCRIPTIONS:

In the United States, Canada and Mexico : : : $1.00 Per Year

Foreign Countries, $2.00

ENTERED AT THE CHICAGO POST OFFICE AS SECOND CLASS MAIL MATTER

CHICAGO, JULY, 1902.

Table of Contents.

Proceedings of the National Telephone Convention.....1-29
Well Known Heads of Well Known Houses.....29
EDITORIAL—
The Philadelphia Convention 30
Independent Telephone Franchise 30-31
Death of Charles T. Child..... 31
The Bell in Michigan 31
Martin-Kane Wedding 31
Digest of Telephone and Kindred Patents.....32-40
A New Pay Station.....40
Decisions Affecting Telephony.....41
Swedish-American Telephone Company's Factory.....42-51
Departure in Switchboard Manufacture.....52-56
The Girl-less Telephone Central 56
New Kellogg Receiver 56
A Word About Poles to Investors.....56-57
New Telephone Switchboard.....57
The Baird Battery Guage 57
Sumpter Convention Exhibit 57-58
The Kellogg Ringer 58
Large Combination Hotel Telephone System.....58
The Kellogg Catalogue 58
W. C. Sterling & Sons 59-61
Chicago Telephone Supply Company 61
Fulmer Lumber Company 62-63
Trade Notes 63-64
The Saratoga Telephone Company's New System.....65-68
Wisconsin Independent Telephone Convention.. 69-70
New Telephone Association 70

THE PHILADELPHIA CONVENTION.

The recent convention of the Independent Telephone Association of the United States, held at Philadelphia, was largely attended, but it must be admitted was not a national convention in the sense of representing all the states largely interested in the development of the Independent movement. The attendance, exclusive of manufacturers present, was limited almost entirely to delegates and visitors from exchanges near the convention city. The expense of a long trip doubtless contributed to prevent the attendance of western and southern delegates, and it is obvious that the National Association will not be given the proper degree of support if the general apathy of exchange owners in the active Independent telephone states is to prevent adequate representation on the convention floor. To insure its largest measure of usefulness, the National Association should be national in fact as well as in name, and this it cannot be, if its conventions are not to be representative national gatherings. It must be confessed also that the choice of an eastern city for the convention was ill advised at this time. The object in selecting Philadelphia presumably was to attract attention to the importance of the Independent movement, in the financial strongholds of the country, where Independent telephony must look for support in the floating of telephone bonds and other securities. Philadelphia, with a new and successful Independent company, is an excellent object lesson in Independent finance, and it is unquestionably true that the convention did much to dispel eastern erroneous ideas of Independent telephony.

It is doubtful, however, if ever the importance of the financial object lesson is sufficient to compensate for the dangerous lack of general interest in the association's meeting. Independent telephony thrives on enthusiasm. It is a business born largely of a sentiment nearly akin to patriotism. Its growth has been sturdy and vigorous. It has lived healthily, as pioneers live. In the ties of comradeship uniting Independence, lies the movement's strength. These ties must not be weakened by indifference or neglect.

To the officers, directors and advisory board of the Independent Telephone Association of the United States, and to Independents everywhere, Telephony urges the imperitive need for hearty and enthusiastic co-operation in the invigorating of Independent sentiment, and expresses the earnest hope that the plans for the next national convention may be specially designed to secure the revival of general interest, the lack of which so greatly marred the Philadelphia meeting.

INDEPENDENT TELEPHONE FRANCHISE.

As the Independent telephone business grows and extends its lines of activity all over the United States new and perplexing problems and obstacles are encountered. The dark schemes of the Bell company have not yet been exhausted, despite an uninterrupted succession of failures to accomplish the Independent downfall. In these later days the Bell plans have been so childish and puerile in both conception and execution as to excite, not alarm, but ridicule. Having come off victorious in every important contest the Independents are inclined to think little of the prowess of their ancient enemy. Bell methods have, if anything, been of positive benefit in many ways, not the least important of which has been in the training and experience in methods which probably would never have been thought of if they had not been inspired by the needs of early adversity.

The Bell company is no longer dreaded. It is despised. But to take the place of all the old troubles which beset the pathway of the Independent have arisen new vexations to overcome which requires new methods and new plans. From time to time these new issues will be discussed in the columns of TELEPHONY. It seems a fit occasion now to bring up the subject of Independent telephone franchise, a matter of universal and growing interest now attended with complications which have not heretofore been prevalent.

More and more is it becoming the custom for city councils or other local government authorities to urge that a telephone franchise for the establishment of an Independent system should be granted only upon the making of compensation to the city, either by the payment of a lump sum down or per annum, or upon a certain percentage of the telephone company's receipts. In the largest cities, where such a grant of franchise rights carries with it an immense financial advantage to the company receiving it, there may be some excuse for demanding that something

be paid to the city in return, but in all but the very largest cities the argument is totally wrong. The sole conditions upon which an Independent telephone franchise should be granted are guarantees of absolute and perpetual Independence, proper ability to finance and carry out the installation within a reasonable time, of modern telephone plant, and the fixing of reasonable rates to subscribers. However reasonable or logical may be the doctrine of compensation to the city for franchise rights in other lines of business, there is no justification at the present time, nor is there likely to be soon for the demand for compensation or rental to be paid to the municipality for telephone rights.

The communist and socialist insist upon the public ownership of telephone service and systems. In this they recognize the peculiarly public character of the business. TELEPHONY does not go to this extreme, believing that it would not be practicable, and certainly not advisable under present conditions; but we do urge that the public should have so much interest in the establishment and maintenance of telephone competition as to encourage and never discourage those proposing to undertake the task.

When the transcontinental railroads were projected the people were practically a unit in agreeing that they should be granted a government subsidy. Certainly it did not occur to any one to burden them with oppressive taxation. It is no exaggeration to say that the extension of Independent telephone lines is of even greater importance than the building of railroads and there is every reason why franchises to reputable Independent applicants should be granted without the demand for direct compensation.

No business having to do with the public at large in a general way guarantees such direct and immediate benefits to the individual citizen as does the Independent telephone business.

It should not be asked to compensate all the citizens as a body politic, when it offers enormous compensation in reduction of Bell rates and increased efficiency to each and every citizen who chooses to take advantage of its service. That compensation immediately benefiting the subscriber, and the guarantee offered of protection from monopoly exactions, are and should be considered, sufficient and even liberal reason for the granting of free franchises.

Many Independent companies are organized more for the object of securing adequate telephone service than to make money. They are co-operative in character, and quasi-public in ownership. Others again are supported almost entirely by local capital, and are entitled to be differently considered than enterprises, like the Bell company for instance, the stock in which is closely held by men foreign to local interests. All Independent telephone companies give full value received to every user of their lines. It is true that they enjoy exclusive franchise rights, but these rights they have fully paid for in the investment of capital in a local business, contributing most largely to the general prosperity and upbuilding of the community.

It is contended by those who think that Independent telephone franchises should be bought, and not granted free, that the franchise owners and exchange operators will reap a large financial profit from the transaction and should be willing therefore to pay something to the city for the privilege. This attitude presupposes that the money is made upon the franchise grant, which is almost never the case. A franchise is a necessity to a telephone company not a luxury. It has to be used to be made profitable, and in the preparation for operating under it a large financial investment must be made. A single misstep means a loss instead of a profit on the installation. After the exchange is completed, its operation requires a high degree of skill and business ability. Accidents and depreciation of plant are factors which must be considered. All is not gold that glitters, and long ago the Independent learned the lesson that profits are to be made only on the well built and well managed exchange.

To make money honestly and by sheer force of ability is not a crime, and should not be punishable by unjust or thoughtless taxation. The increase of wealth which comes to any man or set of men who have earned it should be a source of pride and not of envy to the public at large.

The granting of telephone franchises should not be coupled with the burden of compensation to the city giving the franchise. It should be the business of every Independent to educate his fellow citizens in this particular. The telephone business is a sealed book to the public at large. The Bell company made the mistake of never letting the people learn anything of its affairs. The Independents are of and for the people, and court knowledge while they seek to dispel ignorance and prejudice. Independent telephone companies are not trusts, nor do they oppress the public. The public should not seek to oppress them. Create a public opinion on the matter of free franchises. Argue it out with your neighbor and show him that not self-interest, but plain justice entitle you, when you seek a telephone franchise, to secure it on the most liberal terms.

THE DEATH OF CHARLES T. CHILD.

The hand of Death is always harsh, but seldom has it seemed more cruel than in the untimely ending of the life of Charles T. Child, technical editor of the Electrical Review. Words are but a hollow mockery at such a time. Our silent sorrow best expresses the sense of irreparable loss. But as friends lay their tribute of a wreath of flowers on the coffin, so does Telephony extend its tribute and joins in sympathy with all who feel in the death of Mr. Child the sense of a personal bereavement.

THE BELL IN MICHIGAN.

Another exemplification of Bell business methods is given by the news that the Michigan Telephone Company, Bell, will default in the payment of interest upon its bonds. An installment of interest was due on July 1st, but for the very excellent reason that there was not sufficient money in the company treasury with which to pay it, the announcement is made that the company will default. TELEPHONY has before this time expressed its sympathy with innocent stockholders in various non-paying Bell enterprises, and now we cannot resist the temptation to suggest that perhaps it would be just as well not to count too surely on some other Bell stock which are at present paying good dividends. The Bell Telephone Company, like its licensee in Michigan, is fast approaching its own destruction. The fault lies in the business methods of the monopoly. Pretending to own or control everything and everybody worth having in the telephone field, and lavishing advice and prophecies of Independent failures by reason of defective Independent business judgment, the Bell company is "hoist on its own petard" and suffers the humiliation of seeing its own methods fail, and the methods which it has derided crowned with business success. About the only purpose for which the Bell company is at present valuable is to serve as a "horrible example" of what not to do. Will the people who own Bell securities be deluded much longer?

MARTIN-KANE WEDDING.

Mr. Fred L. Martin, the advertising manager of the Kellogg Switchboard and Supply Company, Chicago, was married to Miss Lillian May Kane at the home of the bride's parents at Bluehill, Me. The wedding was a very elaborate affair and was followed by a wedding tour through the eastern states. Mr. and Mrs. Martin enter upon their new life with the best wishes of their numberless friends for future happiness and prosperity. The young couple will make their home in Chicago, where Mr. Martin is looked upon as one of the coming young successful business men. TELEPHONY extends its congratulations.

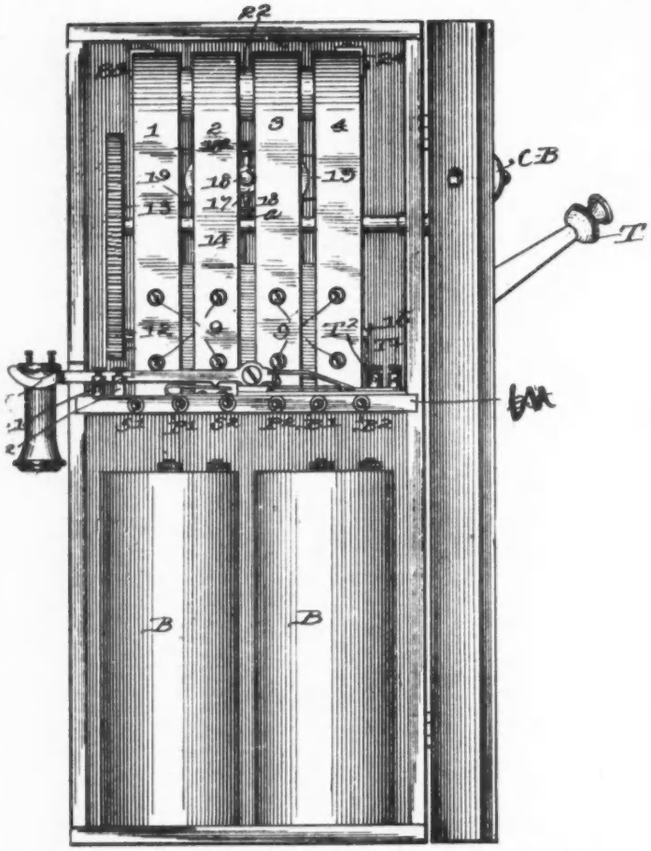
Digest of Telephone and Kindred Patents.

CONDUCTED BY EDWARD E. CLEMENT.

APRIL 8.

697,002, J. G. Nolen—Combination telephone instrument.

This is an instrument somewhat similar to the "cabinet set" which has proved so popular with the telephone public, in which ringer, generator, coil, hook and batteries are compactly arranged in a flat cabinet, the entire front opening as a door. In the present case the inventor has shortened the cabinet, saving the compartment heretofore devoted to the ringer by placing the latter lower down, its coils and frame being mounted inside the field magnets of the generator, and the clapper extending out between the same to



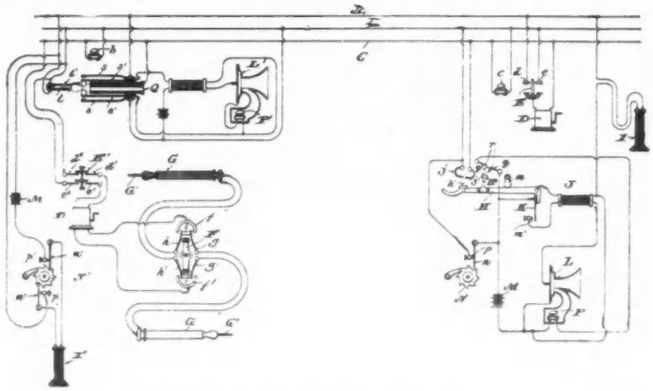
697,002—COMBINATION TELEPHONE INSTRUMENT.

the gongs on the front. The transmitter T is mounted on the front of the cabinet as before, as well as the gongs C-B, and the ringer magnets 19 can be seen in the figure inside the field magnets 1, 2, 3, 4, the clapper 18 extending out from the same. B. B. are dry cells.

697,009, W. E. Pembleton—Electric telephone system.

In the early days of our patent system, when no less than three cabinet officers, including the great Thomas Jefferson, sat in person on the applications, and frequently, it may be added, on the applicants, a much wider scope was assumed in the examination as to patentability than at present. If a device appeared to be designed with a total disregard to commercial usefulness it stood no chance at all of being patented. If this rule were applied uniformly nowadays, and had been right along, the present 700,000 patents on our list would not have amounted to one-third the number, it is likely. Of the two-thirds we may say with a well-known authority, "they never would be missed."

In the present case, the patentee uses three wires for each line as A, B, C. At central, the operator's set is wired carefully to every jack, and to several other places, including a couple of each subscriber's wires. A rotating circuit breaker N′ is provided, also wired to all the lines, and all the jacks, with delightful disregard of any of the rules heretofore weakly followed by engineers, so that the operator may listen in and test the line thoroughly, to ascertain if it is in use. If so, she hears clicks, and if not she probably hears several things. In any case she would probably hear some unparliamentary language if the clicker got in its work with a warm-hearted subscriber conversing. The



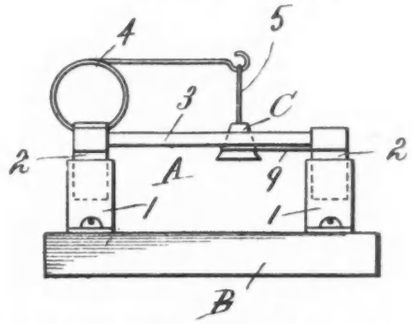
697,009—ELECTRIC TELEPHONE SYSTEM.

plug cord has terminal plugs G and G, and two ringing keys are provided, with extreme thoughtfulness, as operators nowadays are well known to be only half occupied. The key E′ closes the circuit and the key F waggles one side or the other to put generator to one plug or the other.

At the subscriber's station, the hook has a shouldered contract marker H′, which, when the hook rises, will make *two* clicks instead of the customary one, thereby inevitably announcing the intrusion of a listener on a busy line. A test clicker N is also provided, and a lock for the "tilting hook" H, which the subscriber may play with if he wishes.

697,219, C. A. Rolfe—Electric circuit protector.

This is an improvement on the device patented to Mr. Rolfe June 6, 1900, No. 19,294. The device consists essentially of a flat fibre strip 3, having shanks 2, 2. A spring 4 is secured to one shank and a flat strip with a bifurcated



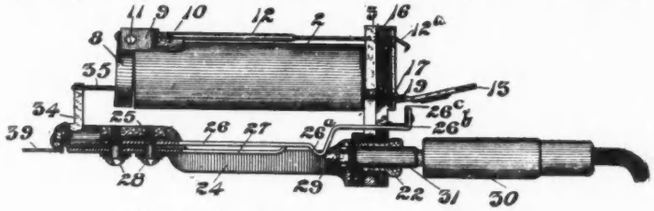
697,219—ELECTRIC CIRCUIT PROTECTOR.

end, 9, is secured to the other. The spring is hooked into the loop of the rod 5, which has its lower end surrounded by a heat coil and embedded in wax or similar material in a metal cone C. The heat coil is connected between the rod 5 and the metal cone C, and the cone rests against the strip 9, so that in the position shown the circuit is completed from left-hand shank 2 through spring 4 to heat coil and to cone C, to the strip 9 and the right-hand shank 2. When a strong current passes the wax melts and the spring pulls out the rod 5 and breaks the connection thoroughly.

697,515, K. B. Miller—Combined jack and drop.

This is the express type of drop in use by the Kellogg

Switchboard and Supply Co., and it is already so well known that the mere identification would seem to be all that is necessary. The salient feature of the invention is the use of the long line spring 26, when pushed up by the insertion of a plug 30, to restore the drop 13. In order to avoid crosses on the frame the tip of the spring carries insulation 25c, against which the drop bears. The entire device is

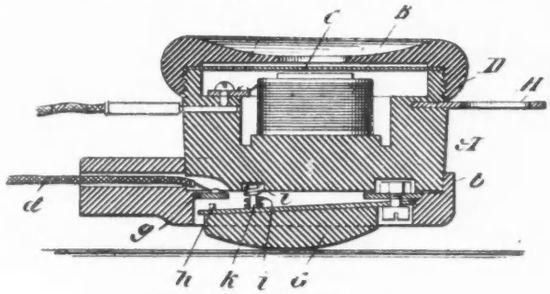


697,515—COMBINED JACK AND DROP.

suggestive of good design, and although there are nineteen claims in the patent, there are many details that are sure to be appreciated, at least partly, because they are unclaimed.

697,528. A. Neri—Telephone.

This is a watch case receiver having the switch incorporated in its case. In the drawing D is the diaphragm, BB are the magnet poles, C is the cap, A the shell and E a rear cover plate, threaded onto the shell and having its

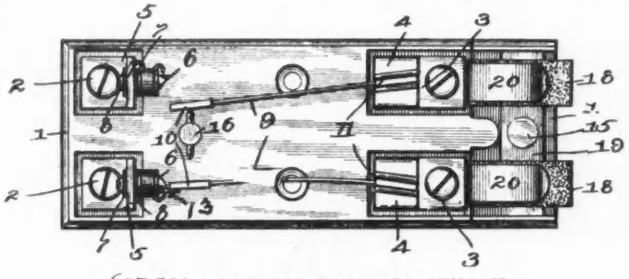


697,528—TELEPHONE.

middle portion cut away to permit the insertion of a spring-retracted push lever G, carrying contact h, co-operating with fixed contact g on the shell. When the receiver is pressed to the ear, the push lever is depressed, and talking circuit closed at gh.

697,530. J. G. Nolen—Thermo-electric switch.

The title in this case is a misnomer, as no "thermo-electric" principle, in the usual sense of the word, is involved. It might perhaps be called an "electro-thermic" device, but the plain sense of it is that Mr. Nolen has "imagined," as the French say, a combined sneak current and

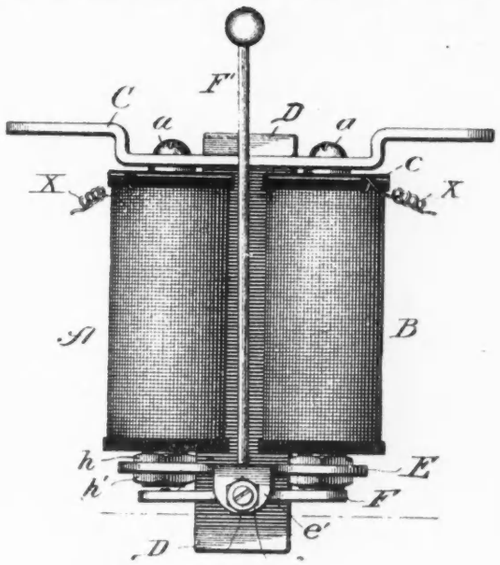


697,530—THERMO ELECTRIC SWITCH.

and high potential protector. He uses the ordinary carbon block static discharge device, 18-18, resting on ground plate 19, and employs also Maxstadt fuse strips 9, each having one terminal, 11, held in a fixed clip 4, and bent away outward, as shown in the lower part of the figure, and held in that position by means of the tip 13. This tip being soldered to the fuse terminal and resting on the end of a core 6 on which is wound a heat coil. The circuit is from line to terminal 3, fuse 9, terminal 10, tip 13, core 6, coil thereon, terminal 2, to the instrument, and back in the reverse path on the other side. When a sneak current heats coil and core 6 the solder on tip 13 melts and the resilience of fuse blade 9 throws the terminal 10 away from core 6 and against ground post 16, thus taking off the line and grounding it.

697,698, E. E. Yaxley—Magneto bell ringer.

This is a ringer of the type originated by the Western Electric Co. and improved by the Holtzer Cabot Company. In the present case the invention relates to the support and



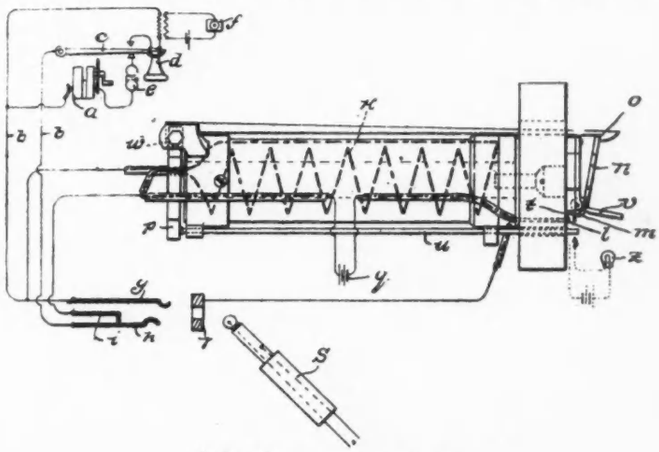
697,698—MAGNETO BELL RINGER.

adjustment of the armature yoke E. The latter is perforated at each end, to fit over the pole pieces of the magnets A B, and a pair of nuts h h' is screw threaded on each pole piece, these nuts clamping the yoke between them, and furnishing the means for an easy and permanent adjustment.

APRIL 22.

698,018, C. E. Hoglund and C. M. Stedman—Annunciator.

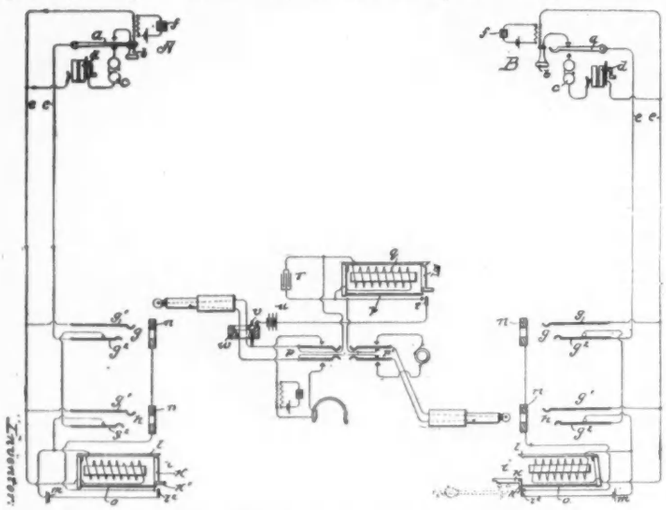
This patent is taken up out of its order because its subject matter forms the basis for other patents that precede it numerically. The device is a very neat solution of an apparently insoluble problem, viz., to make one and the same



698,018—ANNUNCIATOR.

magnet operate both to release and to restore the annunciator drop. It is accomplished in this way: The winding k of the annunciator magnet is connected through jack springs h and anvils i to line in the usual manner, and is therefore cut off at h i when a plug is inserted in a jack.

The winding has a branch from the cut off end, however, that is taken to a restoring battery q and to a contact l, normally disconnected from another contact that forms the terminal of circuit to jack sleeves r, but adapted to be connected therewith when the drop n falls. Drop n has the usual retaining hook o, on lever attached somewhat loosely to armature p, and has also two integral projecting tongues m and u, at its lower part. When a sub-

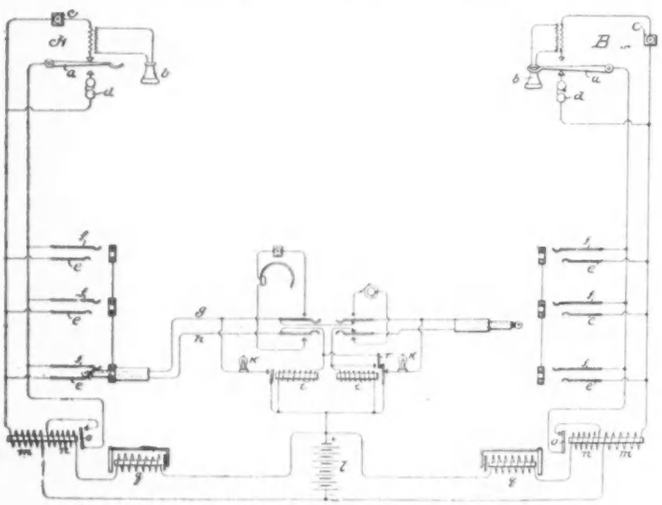


697,989—TELEPHONE EXCHANGE SYSTEM.

scriber rings, the current energizes the magnet and the hook o is lifted, whereupon the drop falls and tongue m turns down to press spring F against contact l, to close circuit of battery q at those points. This battery circuit remains open at r, however, until a plug is inserted in answer to the call, when the circuit is completed to spring y, and back to the coil, the armature p being then sharply drawn up, and as the hook lever is loosely attached, the full force of the movement is communicated to the sliding push rod u, which impinges against the tongue v, and forces the drop up into restored position. In so doing, the restoring circuit is again broken at l.

697,989. W. M. Davis. Telephone Exchange System.

This is a system employing the Hoglund and Hedman



697,990—CLEARING-OUT SIGNALING APPARATUS.

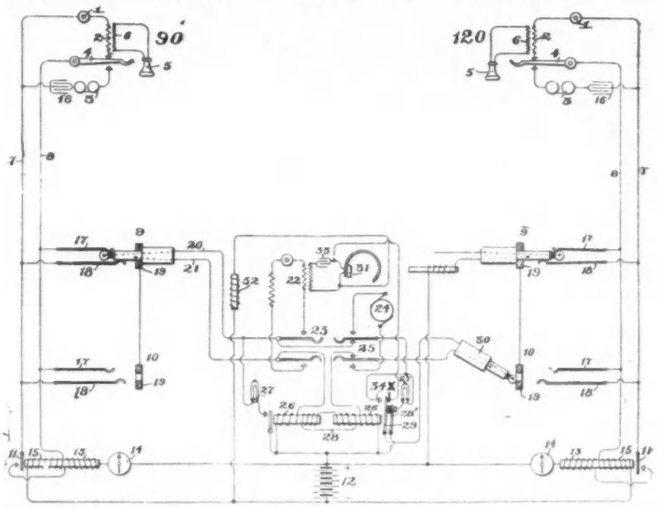
annunciator just described, both as line and clearing out signals.

The connections as line signal are similar to those just described. As clearing out signal the magnet is included in the cord, and shunted by a condenser, the patentee claiming this shunting feature broadly, and stating that it enables a low frequency generator at the subscriber's station to ring off over a long line with certainty.

The restoring contacts in this case are placed in the plug seat w, at v, so that the clearing out drop is restored when the plugs are replaced.

697,990. W. M. Davis. Clearing out signaling apparatus.

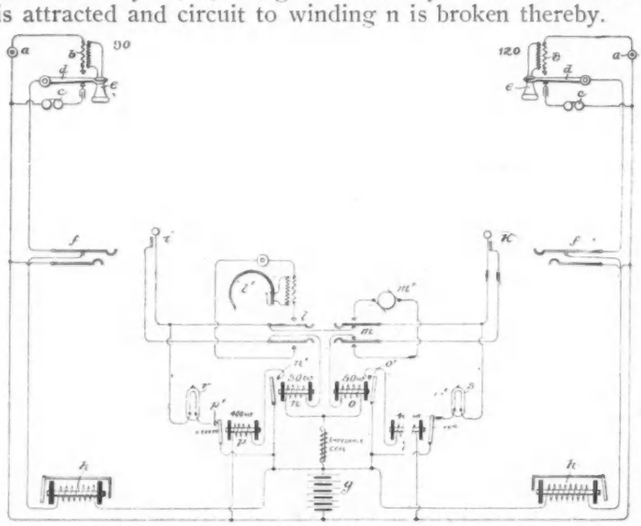
This is a very ingenious scheme for working a cut-off relay with a simple jack. Separate test thimbles are shown,



697,991—MULTIPLE SWITCHBOARD TELEPHONE EXCHANGE SYSTEM.

but it seems that a "spring and sleeve" jack could be used, the test circuit being slightly modified.

The relay m, n, which serves as cut-off relay, has its windings included in the two sides of the line so that when current from battery l flows to line or the subscriber's call, the windings balance, or neutralize. In series with the winding n is the signal magnet q, and armature acts to break this circuit when attracted. When the plug is inserted supervisory relay i and cord h are brought into parallel with the winding n of the main relay, and as the resistance of this path is low compared to winding n, the latter loses current (since m limits the flow) and the balance of relay m, n, being thus destroyed the armature o is attracted and circuit to winding n is broken thereby.



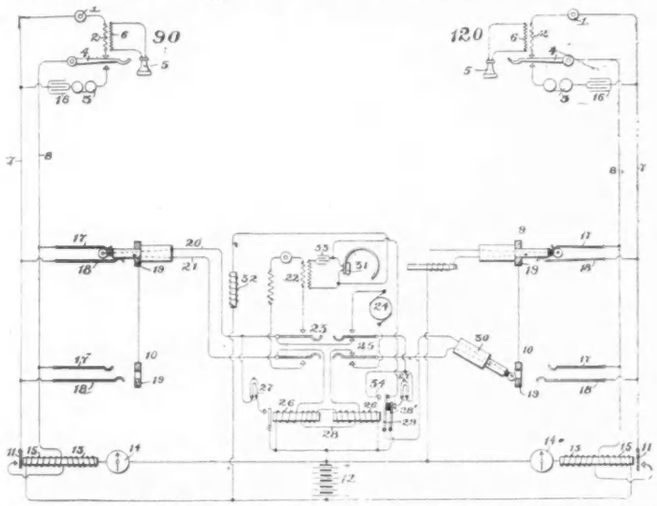
697,992—TELEPHONE EXCHANGE SYSTEM.

The cord conductor h is normally broken at r, this break being under the control of the supervisory relay of the called subscriber, whereby the current flows through each supervisory relay i, i, is controlled by its own subscriber until after the called subscriber B has answered, when the break at r being once closed, remains so, as

thereafter current can flow in parallel from battery 1 through either relay i or i to either station A or B. This means that both subscribers must hang up before either light will signal for disconnection.

697,991.—W. M. Davis, Multiple Switchboard Telephone Exchange System.

This is a common battery system wherein the operation and restoration of all signals is automatic, and the connection and disconnection of the operator's testing circuit to and from the calling plug is also automatic. When the test circuit is connected, moreover, the cord circuit is interrupted, so that the calling subscriber does not get a sharp click from the test, which he otherwise might. The system is otherwise similar to those of Mr. Davis, previously described. Here we have two subscribers, 90 and 120. When the former calls, taking down his receiver, current from 13-15, and the line; and when the operator plugs in, the balbattery 12 passes through line signal 14, balanced windings ance is destroyed, the armature is attracted, and signal 14 is cut off. Having ascertained the number, the operator



697,991—MULTIPLE SWITCHBOARD TELEPHONE EXCHANGE SYSTEM.

inserts the right hand plug into the wanted jack, first touching the tip of plug to jack test thimble 19 to ascertain if the line is busy. At this time the supervisory relays 26, 26, which are included in series in the cord circuit in a well understood manner, with a connection to main battery from between them, are in the following condition: Relay 26 (on the left) receiving current and passing same to line of station 90, is energized, and its lamp 27 is therefore dark, indicating correctly that station 90 has its phone in use; while the right hand relay is de-energized, having as yet no line connection. This relay has back contacts against which its double contact armature 28′-29 rests normally, completing the circuit of supervisory lamp 27, which glows after the plug is inserted, to indicate the subscriber has not answered, and also completing the following circuit to the operator's receiver for test: 12, 32, 31, 29, 30 (tip) 19 (in testing), and if another plug is inserted, as shown, then 9, and through the other plug sleeve and impedance coil back to the battery, giving a characteristic click. If no other plug is inserted, of course no click is heard, as this circuit is not completed farther than the test thimble 19.

The armature contact 29, in connecting the tip conductor of plug 30 to operator's receiver, has disconnected it from contact 34, and the other plug conductor. When the called subscriber answer, however, current from battery 12 passes to his line via relay 26, and armature contacts 28.′29. are pulled up, breaking the test circuit, and completing the cord circuit at contact 34.

697,991. W. M. Davis. Multiple switch-board telephone exchange system.

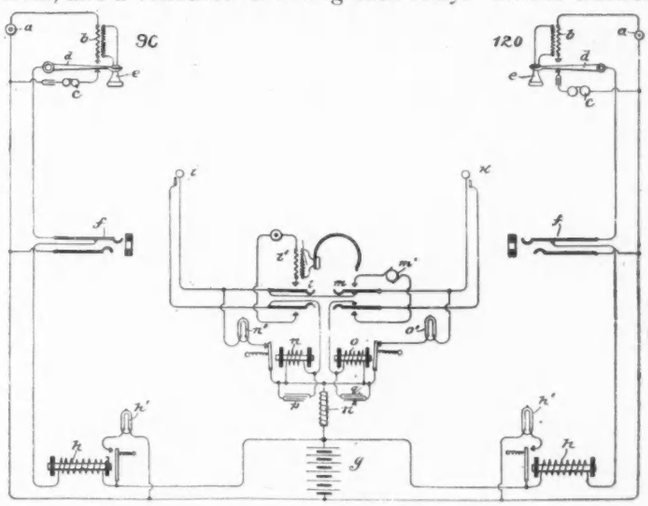
This is a test system, similar in all essential features to the preceding one, but having additional contacts 29 x included in the test circuit to the operator's telephone 31, so that when the subscriber answers, the supervisory relay 26 pulling up its armature, the test circuit is broken, and the cord circuit is completed at 34.

697,992. W. M. Davis. Telephone exchange system.

Supervisory relays n and o are here included serially in the talking circuit with the battery connection through impedance between them. They are low wound and control high wound relays p and q, which in turn control local circuits of lamp r and s. All lines permanently connected on one side to other side of battery for return.

697,993. W. M. Davis. Telephone exchange system.

Supervisory relays n and o included serially in talking circuit, as in previous case, battery connection between them, and a condenser shunting each relay. This is claimed

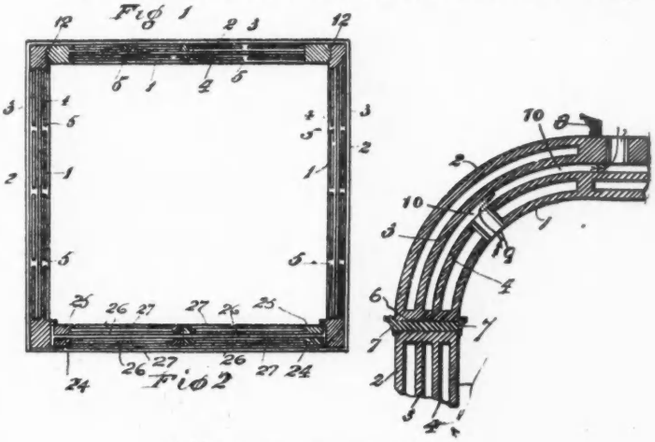


697,993—TELEPHONE EXCHANGE SYSTEM.

to obviate the inconvenience of long and short line feed, where a short line might act as a low resistance shunt for the long one. Relays n and o are high wound.

698,025. C. L. Kiefer. Telephone booth.

This device has walls formed of a series of casings,



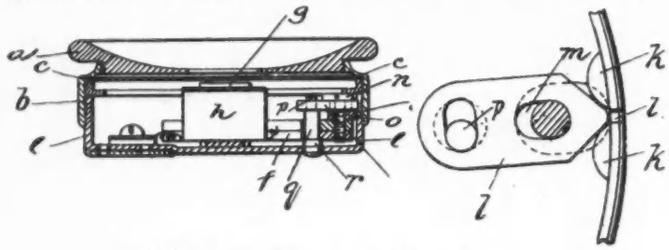
698,025—TELEPHONE BOOTH.

spaced from each other, and a continuous unbroken air space between the centrally arranged casings, the spaces formed by the casings at each side of the air space being divided into a series of air-cells. Two pairs of doors are provided, i. e., double swing doors, swinging in opposite directions.

698,055. H. M. Reeves. Telephone instrument.

This is an adjustment for magneto-telephone diaphragms of the type of Stromberg-Carlson, with a locking device operable from the outside of the case. A watch-

case receiver is shown, having a cap carrying the diaphragm, held by a follower ring c, the cap screwing on the shell e, and serving to adjust the diaphragm as it moves up or down. The shell is split on one side, and a wedge

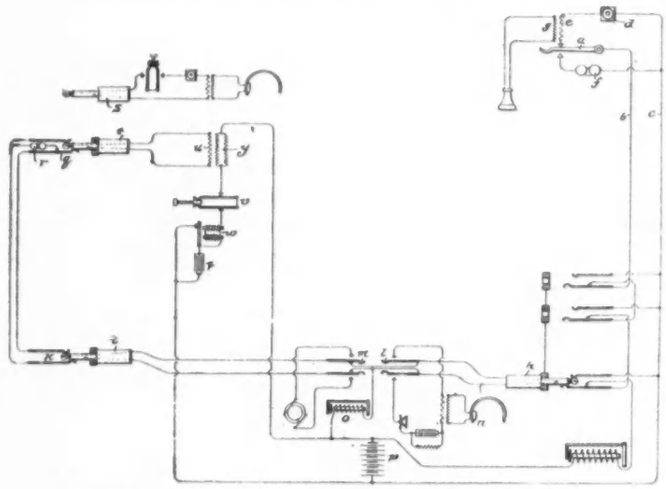


698,055—TELEPHONE INSTRUMENT.

l is arranged to slide on a pin m, being moved by an eccentric pin p, on a post q, and serving to spread lugs k k on the split portions of the shell and thus join the threads of shell and cap and prevent turning.

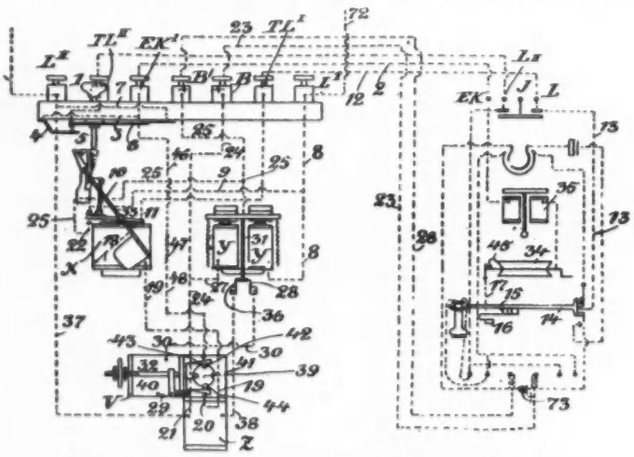
698,087. H. G. Weber. Telephone exchange system.

This comprises means for calling a subscriber who has



698,087—TELEPHONE EXCHANGE SYSTEM.

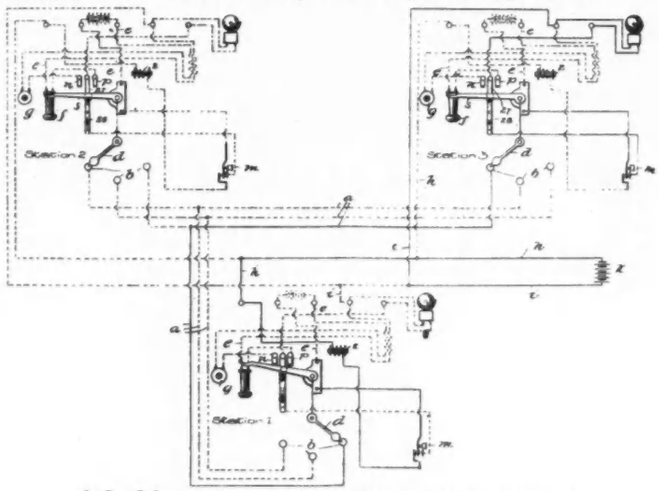
left his receiver off the hook. The subscriber's operator, observing a persistent signal, leaving plug h in the subscriber's jack, places the other plug i of the pair in the jack of a trunk line leading to the desk of a special oper-



698,307—PARTY LINE TELEPHONE APPARATUS.

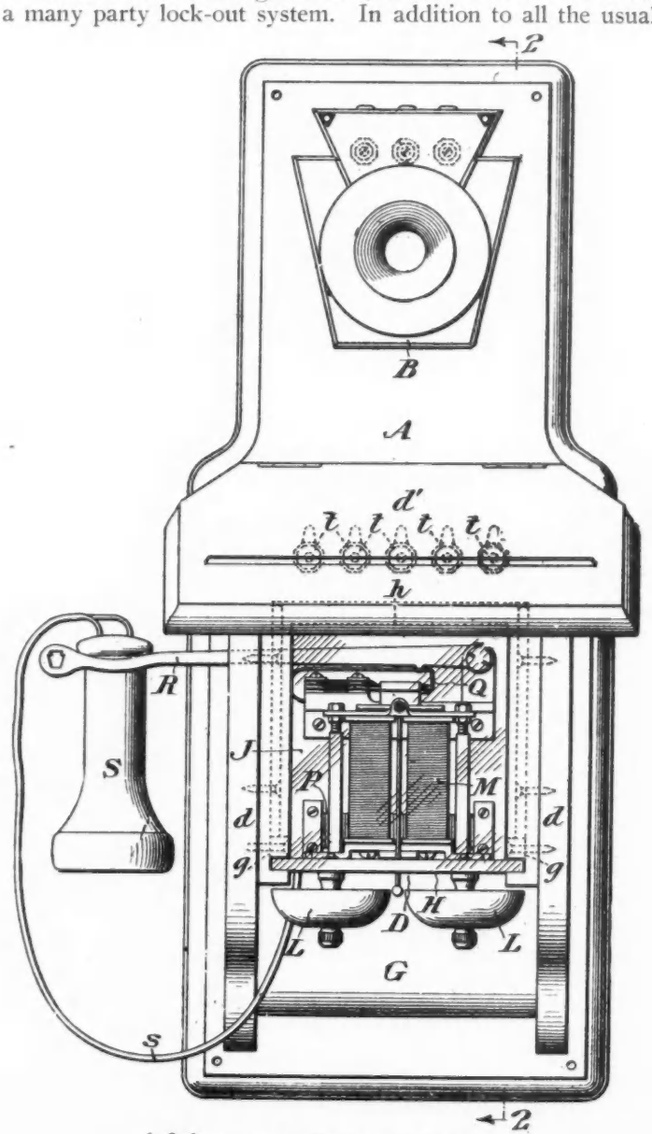
ator, who has listening means and plug s, and a calling plug t, whose cord conductors lead to the secondary u of an induction coil, whose primary y is connected through a vibrator w to the main battery p. Contacts of the vibrator w are shunted by a condenser in the usual manner. The induced currents cause a humming sound in the receiver at the subscriber's station.

698,307. G. Möller. Party line telephone apparatus.



698,386—SECRET SERVICE TELEPHONE SYSTEM.

This is a Danish gentleman, who wishes to construct a many party lock-out system. In addition to all the usual



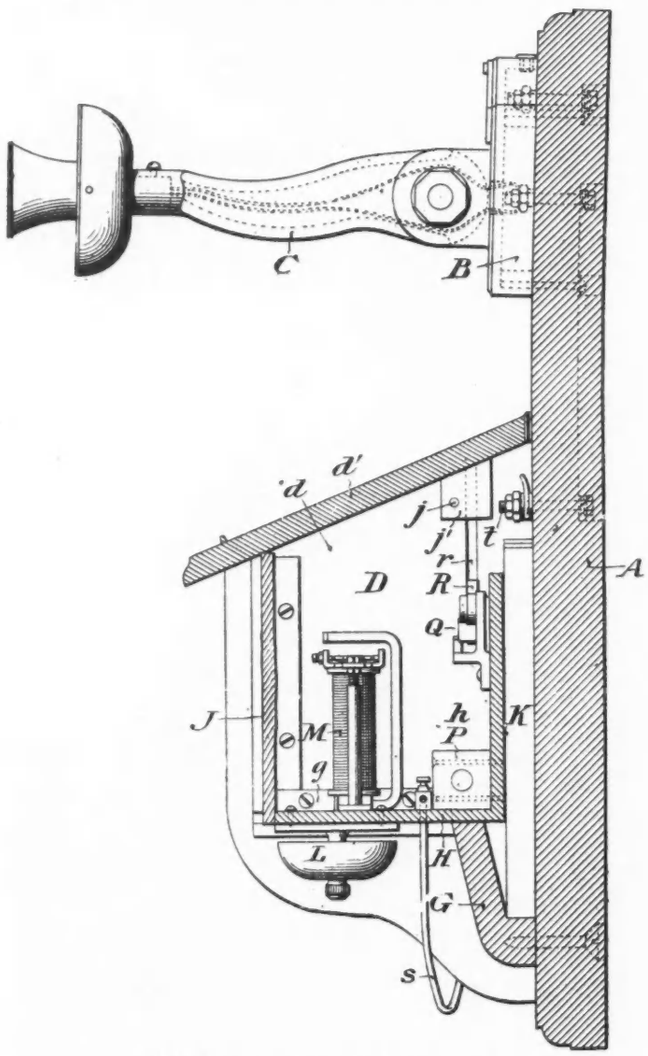
698,612—TELEPHONIC WALL SET.

apparatus, he employs four relays at each station, of such delicacy that two work on one milliampere of current each.

The others are not quite so fine in their adjustment, but nearly. One "relay," x, so called, is bridged normally to respond to alternating calling currents sent to central and lock out its station, at the same time lifting target 10 to "busy." At the calling station a push button holds the target down, as it closes the generator circuit. The second relay, y, serves as an "auxiliary blocking relay," the third as a "connecting" relay and the fourth as a "disconnecting" relay. The circuits are not clear, the delicacy of the instruments is as doubtful as the accuracy of the description, and the entire apparatus is in no danger of being pirated in this country. Home products are better.

698,386. A. K. Andriano. Secret service telephone system.

This is a "fly back" intercommunicating telephone system, where each station has one wire in the set and common battery wires are used. A system of locking levers and pawls and a magnet, at each station, are only actuated when calling current is obtained from the battery and sent through the bell at another subscriber's station. If such subscriber has his switch hook up, being engaged in conversation, such passage of current is impossible, and the calling station then finds its talking set to remain disconnected, whereby listening in the connected lines is impossible. In order to release the selective switch at any station for use, the switch hook must go up, thus cutting out the bell circuit, and providing against any interruption during the ensuing connection.



698,612—TELEPHONIC WALL SET.

698,612.—C. E. Wilson, Telephonic Wall Set.

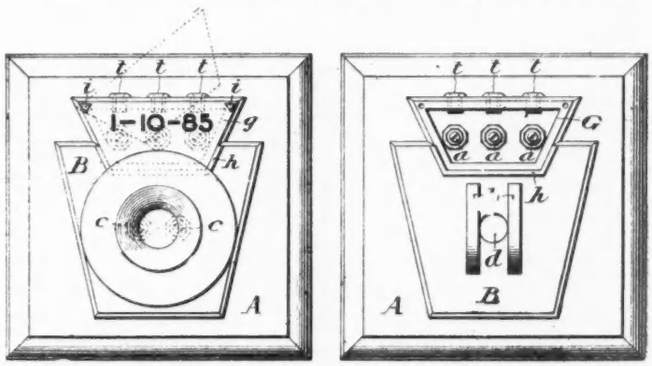
This is the common battery telephone specially designed for the Keystone Telephone Company of Philadelphia, of which Mr. Wilson is general manager. It is manufactured by the American Telephone Co.

As usual, this instrument has a high wound ringer, long lever switchhook, two microfarad condenser, and a hollow pivoted transmitter and concealing the conductors to the transmitter. The invention in the case lies in the ingenious arrangement of parts rather than any new principle involved. The transmitter arm C is pivotally mounted on a cast iron hollow base, B (shaped in this case like a keystone), which has a removable face plate at its upper part, beneath which lie the line posts, as shown in dotted lines in the figures.

Beneath the desk d' is a chamber with a bottom and back plate D of iron, and a face plate J of glass. Both of these slide into grooves in the side brackets d; the ringer M, induction coil P, and switchhook R being mounted on the iron bottom or back plate D, which, when it is slid out, brings all these parts with it, leaving only the condenser, which rests in its pocket G at the back, and is connected to the parts on the plate by a flexible conducting cord, to permit of their removal.

698,613.—C. E. Wilson, Base Plate for Telephone Transmitter Arms.

This is the hollow base plate referred to in the previous description. It consists of a body B, cast with a raised back flange to make it hollow, and having a divided chamber G, in which the line meter, and ground binding posts a-a-a are disposed, the conductors being led in to them through bushed openings t t t in the top flange of the base. A cover plate g is fitted over the posts, carrying the number of the instrument, or an instruction card, and is secured by screws i i, having odd shaped heads, requiring a key to turn them, access to or tampering with the connections thus being prevented.

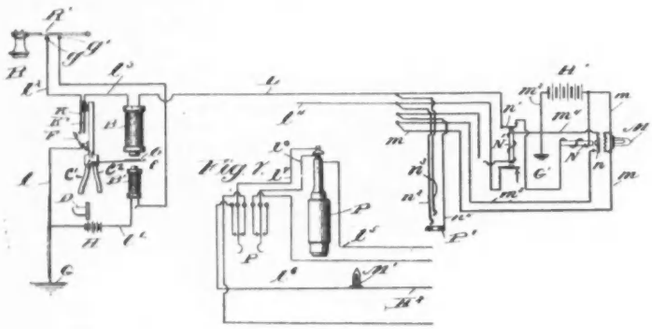


698,613—BASE PLATE FOR TELEPHONE TRANSMITTER ARMS.

698,972.—T. R. Laing, Apparatus for Telephone Toll Lines.

This is a toll station scheme, having three objects: First, if subscriber deposits a coin without taking receiver from the hook, it is promptly return to him; second, if he calls and line wanted is busy, it is also returned; third, if he gets his connection the coin is retained. The coin must be deposited in order to call at subscriber's station the main chute branches into two, C^1 C^2, the first leading out of and the second leading into the coin box. A pivoted deflection is employed, located just at the junction, and is connected to the armature b of magnets B and B^1, the former described as of high and the latter low resistance. A circuit closing arm F has its lower end extending into the chute, and when a coin is inserted it pushes this arm over to close together the contacts F, K, K^1. If the hook has not been raised by removing the receiver before depositing the coin, the local circuit l, l^1, l^2, l^3 is closed to magnet B^1, which pulls down armature b, and turns deflector to throw the coin down the chute C^1, whence it passes out again to the cup D, and can

be recovered. If the hook is up to call, circuit is closed from ground G by wire 1 to arm F, contacts K, K¹, wire l³, magnet B, line wire L, to central, magnet N, battery H¹, and ground by m². Magnet N then pulls up armature n, and closes circuit m², m, m³ of line signal lamp M, which lights for the call. The operator inserts plug P, and connects a source, of high potential, by cord conductor l⁶, with supervi-



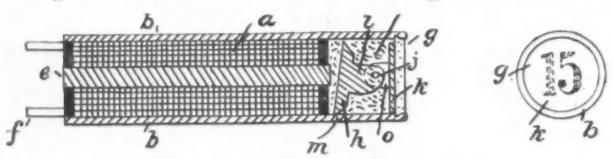
698,972—APPARATUS FOR TELEPHONE TOLL LINES.

sory lamp M¹; the current then sent to line energizing magnet B at the subscriber's station, tilting the deflector to throw the coin into right hand chute c², and so into the coin box. If the number wanted cannot be obtained, the receiver is replaced on the hook, and magnet B¹ is energized to return the coin to the depositor, as in the first case. Battery H¹ at central is not of sufficiently high potential to energize magnet B.

MAY 6.

699,140.—C. C. Blake, Electrical Annunciator.

This is a signal consisting of a tubular shell b, with glass front g, and magnet a. A chamber C in front of the magnet is filled with opaque liquid, and within this chamber are mounted the signal target k, and the armature i. As long as the latter is retracted the target is visible, as it



699,140—ELECTRICAL ANNUNCIATOR.

is pressed against the glass front, but when the armature is attracted, the target disappears from view, as the opaque liquid then fills the space between it and the glass.

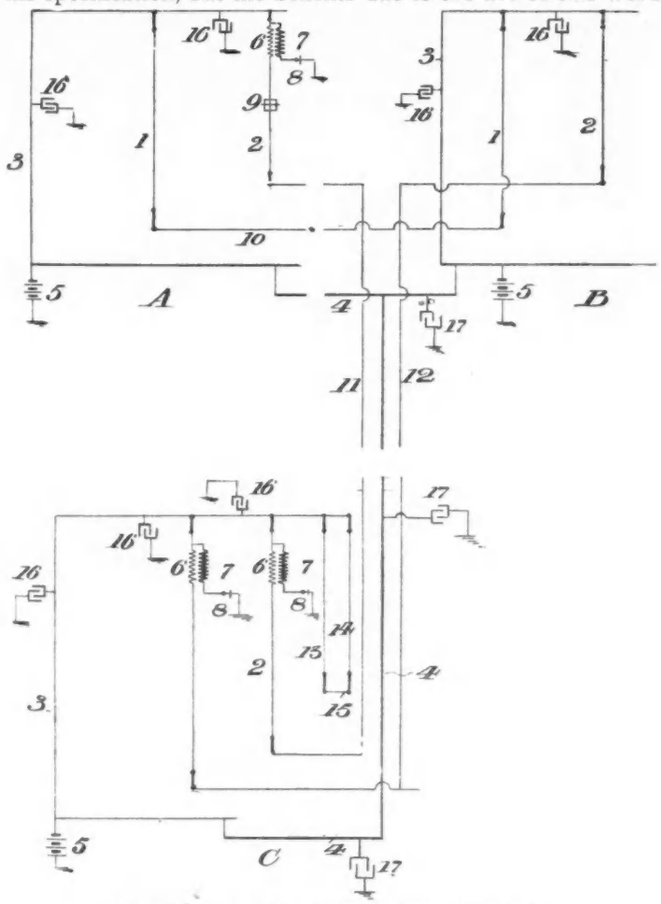
Another form shown has the armature at the rear end of the magnet, with a rod through the hollow magnet core to the target in front, so that the latter is rendered visible only when the armature is attracted.

699,162.—E. F. Frost, Telephone Circuit System.

This is another case of Dr. Frost, who years ago was associated with the Bell Telephone Co. The Doctor wishes to utilize the old McCluer system, wherein a common return wire was employed, of larger sectional area than the direct line wires, in order to balance inductive effects. The system went out of use years ago when metallic circuits were adopted, but is here resuscitated, and the Doctor conceives that by adding, in some way to the static capacity of the common return, he can secure better results than he may have obtained the old way.

The diagram herewith shows three central office groups, A, B, and C, with subscriber's single line wires 1, 2, leading to their stations, and a common return 3, extending throughout the whole system, thereby beautifully tying all subscriber's lines together at all times, which, doubtless by an error on the part of all telephone engineers, has hitherto been considered rather undesirable, but which does no harm on paper, at any rate. To increase the capacity of the conductor 3 is the Doctor's main object, and so he hitches on grounded condensers, 16, in a great many places.

The Doctor speaks rather vaguely of "inductance" in his specification, but the benefits due to the use of this word

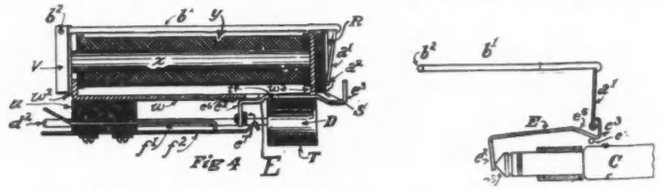


699,162—TELEPHONE CIRCUIT SYSTEM.

are not so fully explained as those due to the condensers, which are supposed to make of the common return "an artificial earth," whatever that may be.

699,619.—H. M. Fisk, Combination Drop and Jack for Telephone Switchboards.

This is an "express type" drop and jack, "mechanically self-restored." y Is the magnet, with hook detent lever b¹, and shutter a¹, protected at a². D is the jack sleeve, back of which are the contact springs and anvil, f¹ f². Mounted above the jack sleeve, to slide back and forth, is a dog E,



699,619—COMBINATION DROP AND JACK FOR TELEPHONE SWITCHBOARDS.

having its outside or front end upturned at l³ to come against the shutter, when it is pushed in, and its rear end turned down at c², and insulated (e⁷) to be engaged by the plug, when the latter is inserted in answer to the call. As shown in the skeleton figure to the right, the plug pushes in the dog, and its end e³ pushes up the shutter to restore it.

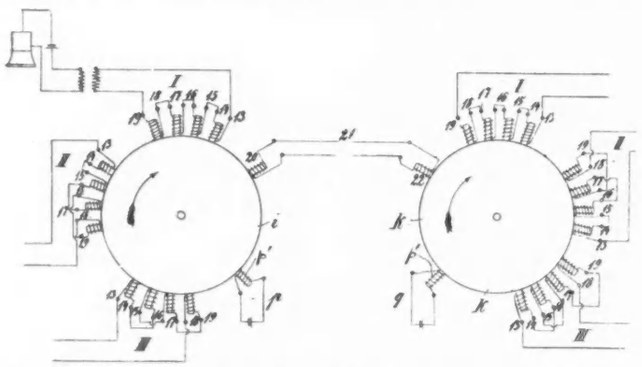
699,630.—P. O. Pedersen, Method of Recording Messages, Signals, etc.

This is an improvement on the invention of V. Poulsen, which has been so much discussed, patented Nov. 13, 1900, No. 661,619, whereby, it will be remembered, a steel

strip or ribbon is passed along in front of the pole of a telephone receiver magnet, while voice currents are passing through the windings thereof, and receives therefrom a magnetic, if it may be so called, continuous, but of variable density, corresponding in its successive variations to the voice waves producing them. Such a strip, when passed in front of another magnet in circuit with receivers, produces varying magnetic effects in the core thereof, and thereby correspondingly varying electo-motive forces in the circuit, reproducing in the receivers in circuit the original sound waves. In other words, Poulsen's invention is a magnetic phonograph of the most beautifully simple mechanism.

In the present case, Mr. Pedersen desires to store up on the paramagnetic strip or ribbon several speeches, or parts of the same speech, superimposed but non-interfering. This he accomplishes by arranging groups of magnets, for instance, as shown in the drawing, I, II, and III, indicating such groups. This drawing also shows the arrangement by which Mr. Pedersen says it has been discovered that several messages can be simultaneously transmitted over one wire.

The apparatus includes a steel disk i at the transmitting station and a corresponding steel disk k at the receiving station. Both disks are to be simultaneously rotated. At both stations are provided the local circuits I II III, each of which includes four electromagnets. For each series of electromagnets there is a set of terminals 13, 14, 15, 16, 17,



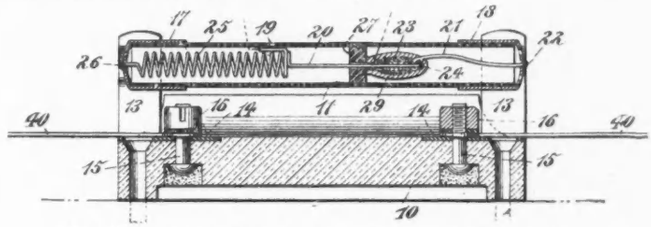
699,630—METHOD OF RECORDING MESSAGES, SIGNALS, ETC.

18 and 19. The magnets in the set I are connected, say, in series. Those in the circuit II are connected in a different way, while those in the circuit III are connected in still another way. The magnets in corresponding local circuits at the two stations are connected in identically the same way—that is, the connections of the magnet in the local circuit I in the transmitting station is the same as the connection of the magnets in the circuit I at the receiving station, and so on. The circuit 21, over which the messages are to be simultaneously transmitted, contains at each station an electromagnet which faces up the respective disks, one magnet being indicated by 20 and the other by 22. With the apparatus equipped thus in operation the magnetism created in the disk i by the three different sets of magnets acting simultaneously thereon will affect the magnet 20 and send impulses over the circuit 21, which will be received by the magnet 22 and impressed upon the disk k. Those impulses which were created by the circuit I at the transmitting end will be picked up and delivered to the receiver in the circuit I at the receiving end, and in like manner the receiving circuits II and III will select the messages delivered through the circuits II and III at the transmitting station. After the disk has passed all of the recording and reproducing magnets it passes an obliterating magnet p′, which cleans off the record so that it may be presented to the recording magnets in condition to receive a new portion of the message.

MAY 13.

699,647.—D. G. Blake, Safety Fuse for Electric Circuits.

This is an enclosed type of combined fuse and sneak current arrester; 25 is a coiled spring wire, having one end secured to cap 17 by solder 26, and the other end passing through the partition 27, and soldered to end of wire 21, which in turn is soldered to cap 18 at 22.

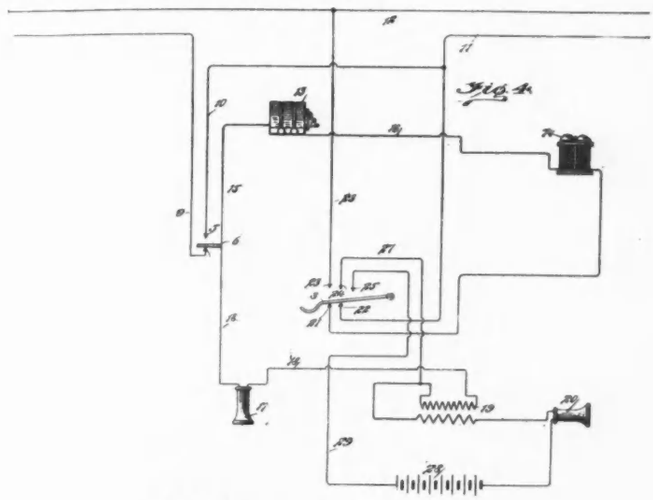


699,647—SAFETY FUSE FOR ELECTRIC CIRCUITS.

Around the joint between these two wires is a heat coil 23, included in the circuit at the joint, cased in plaster of paris 29, and lined with asbestos, 30. When the coil heats up the spring 25 pulls its end out of the coil, though the partition, and the asbestos stops the hole, to prevent sparking.

699,676.—G. E. Goodhead, Telephone Circuit.

This gentleman desires to prevent an intermediate subscriber on a series toll line from listening in when subscribers at the ends, or beyond him, are talking. He accomplishes the feat by cutting the line so they cannot talk, which is one way, perhaps, and a brilliant one, of stopping listening, for it is obvious that we cannot overhear what is not spoken. Nevertheless, if the subscribers who have paid for a talk together, and are thus put out of business by an interloper, are ordinarily human, it may be conceived that said interloper would be likely to get an instance of wireless transmission, for there would certainly be disruptive discharges at the ends of the severed line.



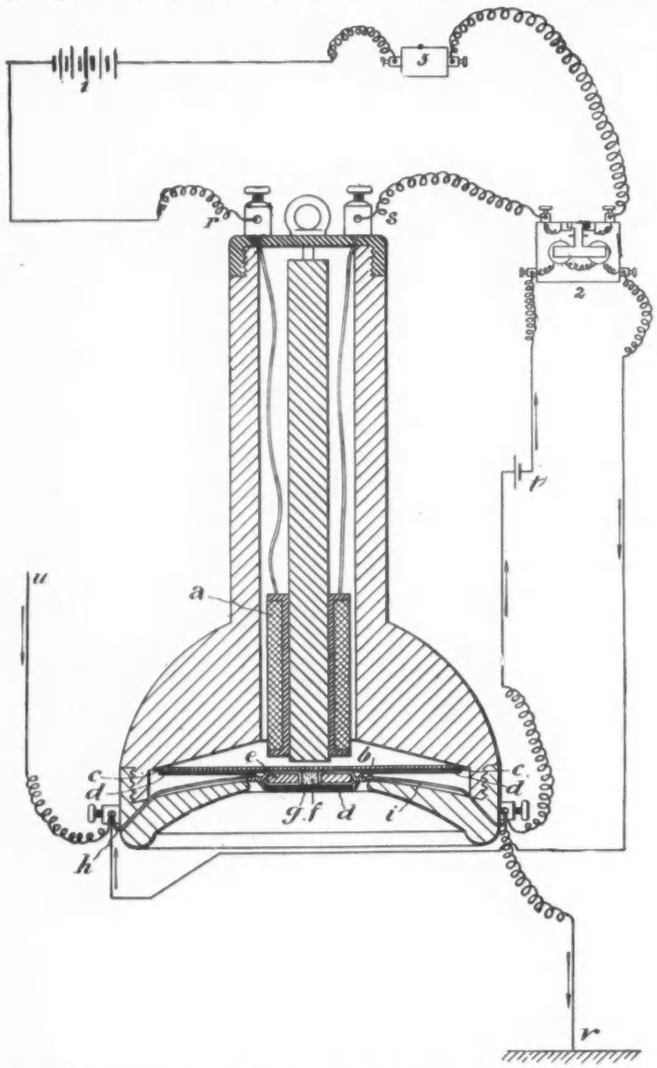
699,676—TELEPHONE CIRCUIT.

The diagram shows how Mr. Goodhead (happy name!) accomplishes his felonious purpose. The line wire 11 goes to the hook contacts 22, 21, ringer 14, 16, generator 13, switch 6 (also controlled by the hook), contact 4, and so on to the unsuspecting subscriber at the far end. Line wire 12 is continuous. When the hook 3 goes up, line wire 11 goes up, too, at the points 6-4; where the break is made that stops all listening—that is talking—and the telephone set 17, etc., is put across at 26, 27, 19, 17, 18, 10, 11, etc.

It should be noted that the instrument 20 in the drawing is intended for a transmitter although to the naked eye it looks too much like the usual receiver symbol. Petty errors must be overlooked however, in the presence of such sublime invention. The draughtsman was probably dazzled.

700,161.—T. Tommasina, Telephonic Receiver for Wireless Signal Apparatus.

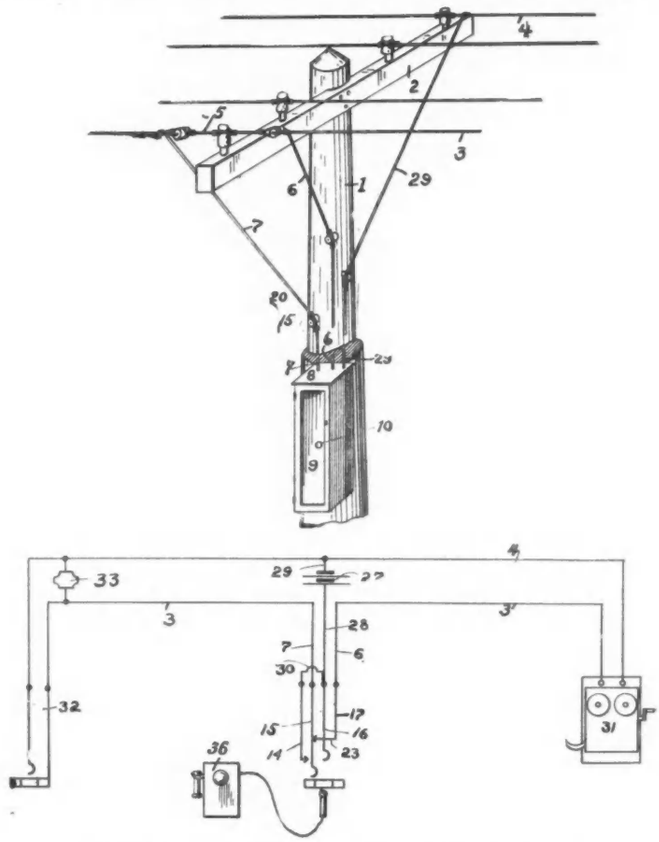
This is a scheme for telephonically receiving impulses transmitted by Herz waves. The gist of the whole invention is in mounting a coherer g on the front of the diaphragm of the telephone receiver, this coherer, when affected, closing the relay circuit t-2, which closes the local circuit r-1-3, in which the receiver coil a is connected. The receiver magnet attracts the diaphragm b, emitting a sound and simultaneously decohering the coherer.



700,161—TELEPHONIC RECEIVER FOR WIRELESS SIGNAL APPARATUS.

700,380.—E. Shelby, Telephone or Telegraph System.

This is a system for railroads and the like, where the lines are carried along poles, and boxes on the poles are connected so that policemen, conductors or others can plug in with portable telephone sets, and call central. In the diagram 31 represents a subscriber's telephone. Wire 3 runs therefrom through the connections just described to the central office (represented by the jack 32 at the other end of the diagram and the drop 33). 4 is the return wire. This diagram shows the wiring and circuits as they exist while the intermediate-telephone connection herein shown is not in use. Thus in the diagram the wire 3 from the subscriber's telephone connects with the wire 6, and the circuit runs through the spring or conducting strip 17 and through pin 23 to the spring 15 and then through the wire 7 back to the other portion of the line 3, making an unbroken line from the subscriber's telephone to the central office. In such case the subscriber can use his telephone without any inconvenience or interruption by reason of the intermediate telephone arrangement. When, however, the intermediate telephone 36 is used, the plug 35 is inserted in the jack. In the first place it moves the end of the spring 15 into momentary contact with the strip 14 and out of contact with the pin 23, thus breaking connection with the subscriber's telephone and making a short circuit through the battery to the central office. When the plug is fully inserted, the spring 15 is still held away from the pin 23 and the circuit is complete through the telephone. During the use of this intermediate telephone it is therefore apparent that the regular subscriber's telephone is cut out. When the intermediate telephone plug is withdrawn, the parts resume the position indicated by diagram, and then the subscriber can use his telephone, as before.



700,380—TELEPHONE OR TELEGRAPH SYSTEM.

A NEW PAY STATION.

The Chicago Pay Station Company has just completed a sample of a new model pay station with all the good features of the machines they have been heretofore making and with the added feature of separate push knobs for each coin channel. The object of this is to prevent people making mistakes in depositing more than one coin at once and pulling the lever and giving more than one signal at a time.

This new machine also has a window in the front into which each coin as deposited drops and leaves evidence behind the last user as to the deposit he made. If it should be a spurious coin of any kind whatever it can be seen. This is said to be much superior to any magnet device for simply throwing out iron or steel slugs as the majority of slugs which are used are made of brass.

The Chicago Pay Station Company is also prepared to supply its customers with telephone booths for which a special catalogue will be furnished.

DECISIONS AFFECTING TELEPHONY.

Prepared for TELEPHONY by Andrews & Murdoch, Berrien Springs, Michigan.

PUBLIC FRANCHISES.

Considering the multifarious nature of the relations between telephone companies and the general public, the small amount of litigation growing therefrom is surprising. During the last thirty days but one decision has been filed directly affecting the telephone business. Inasmuch, however, as this decision relates to a question of great importance, and one which will come up with more frequency hereafter, it is worthy of review.

The legislature of Wisconsin in 1898 enacted a law providing for the sale thereafter by municipalities of all public franchises. A section of the act provides that its benefits should be optional, and should be determined by submission to popular vote. There is a public clamor for similar litigation in nearly every state, and the point decided in the case referred to herein will doubtless be referred to time and time again.

The Wisconsin Telephone Company was duly incorporated for the purpose of conducting telephone business under the statutes of that state in 1882. Under such statute, it has frequently been held by the courts, in effect, that the company so incorporated, as against the public, is authorized to occupy the streets of cities within the state, and to build and operate telephone lines therein, and conduct the business of telephoning thereon, and may construct and maintain any such lines, with all necessary appurtenances, from point to point upon or along or across any of such streets, "or upon the land of any owner consenting thereto, and from time to time extend the line at pleasure," subject, however, to such conditions, restrictions and regulations as are or may be prescribed by law.

In February, 1900, the Wisconsin Telephone Company filed a petition with the common council of the city of Sheboygan, Wis., asking for a franchise to erect a telephone line in the city according to plans outlined in the petition, in connection with the extension of its present line, with such changes as the common council might require.

The council refused to act on the petition, but in November following submitted the question of taking of benefits of the statute referred to to popular vote, and 1,494 of such electors voted in the affirmative, and 301 in the negative. In the following year after adopting appropriate resolutions the council adopted rules and regulations for the maintenance and operation of the extension of the company's telephone plant, and the conduct of its business, to the effect that poles might be set and wires run upon the streets as therein prescribed, the manner of conducting its central exchange, and its attendants, the quality and condition of the wires, the maximum rate of charges to persons or customers, the manner of placing the poles, wires and appurtenances, and provided that bids for such franchise should be advertised as therein prescribed, and that, in case the Wisconsin Telephone Company should make the highest bid, such franchise should be granted to it upon its making requisite deposits and giving the requisite bond. After the passage of the resolutions the council did advertise for bids for the franchise, but the Wisconsin Telephone Company failed to put in any bid, having prior to that time commenced proceedings for the writ of madamus to compel the council to grant its petition as originally made.

This case has been before the supreme court of Wisconsin, in interlocutory proceedings twice before. In each case the court has decided favorably to the telephone company. It has just rendered an opinion finally disposing of the matter in which it holds that the statute of 1898 and the popular vote in Sheboygan to accept its benefits cannot affect the company, for the reason that it was organized long prior to such action by the city, under a statute itself giving the company the right to operate, and to occupy the city streets.

DELIVERY OF MESSAGES.

With the scarcity of legal decisions directly affecting the telephone business, it may be interesting to note the character of decisions most frequently growing out of the conduct of the sister industry, the telegraph business. More than from any other causes this litigation arises in actions for damages from failure to deliver messages promptly. There are many towns with ample telephone facilities, but having no telegraph office at all. Telegrams to addresses in such towns are necessarily transmitted from the last telegraph station by telephone, and unless the telegraph company has accepted the message under the conditional contract providing for the emergency it will be liable for delay in delivery, and unless the telephone company wishes to share in the liability its operator will have to use the same diligence as required of telegraph companies.

Three cases decided during the last month covering this point are of special interest:

In an action for damages for mental anguish and physical suffering on failure to deliver a telegram, allegations in the complaint that plaintiff was made sick, forced to take her bed, and call in the services of a physician, and expend large sums in medicine, care and nursing, are neither irrelevant nor surplusage. Simmons et al. vs. Western Union Tel. Co., 41 S. E. Rep. (S. C.) 521.

In an action against a telegraph company for failure to deliver to plaintiff a message announcing the death of his father, plaintiff testified that the last time he saw his father was four years before his death; such evidence being introduced to show the condition of deceased's health when plaintiff last saw him. Defendant did not object to the testimony so far as it concerned deceased's health, and the court instructed the jury that they should not permit it to enter into the question of damages. Held that, in the absence of a contrary showing, the jury would be presumed to have followed the court's instructions, and there was no error. Rosser vs. Western Union Tel. Co., 41 S. E. Rep. (N. C.) 378.

A telegraph company, after delivering a telegram to plaintiff's wife announcing that her brother was not expected to live, failed to promptly deliver a second dispatch stating that he had died of a contagious disease, and that she had better not come; and she, not knowing the actual facts, went with her young baby to his home, and there, learning for the first time that he had died of smallpox, was compelled to wait outside in the cold and rain with her baby until she could procure a carriage to take her to the depot. Held, that if, but for the company's negligence, the trip would not have been made, plaintiff would be entitled to recover the expenses thereof, but that damages caused by her having to wait outside for a carriage and the consequent exposure were too remote. Western Union Tel. Co. vs. Murray, 68 S. W. Rep. (Tex.) 549.

TELEPHONE TROUBLES.

Lawyers will hardly find wireless telegraphy so productive of fees as was the telephone, litigation over which put millions into their pockets. Professor Bell had a strenuous time, recalls Victor Smith. He took the first working model of his instrument to John A. Logan and offered "Black Jack" a half interest for $2,500, saying that it would do away with the telegraph and that there would be millions in it. Logan replied: "I dare say your machine works perfectly, but who would want to talk through such a thing as that, anyway? I advise you to save your money, young man." Bell then offered a tenth interest to an examiner in the patent office for $100 in cash. It was refused. That tenth interest was worth $1,600,000 in fifteen years. The giant intellect that refused it is still examining patents.

The Swedish-American Telephone Co., Chicago.

The Swedish-American Telephone Manufacturing Company of Chicago has grown in less than three years to be one of the foremost Independent telephone manufacturing concerns in the country. The company was organized in December, 1899, at which time it employed three men and occupied a floor space of two hundred and fifty square feet. The present factory of the company, cut of which is shown on opposite page, has a floor space of nearly one hundred thousand square feet, and is modern and up to date in every particular. The number of men now employed by the company is three hundred.

T. LIDBERG,
VICE-PRES. AND SUPT.

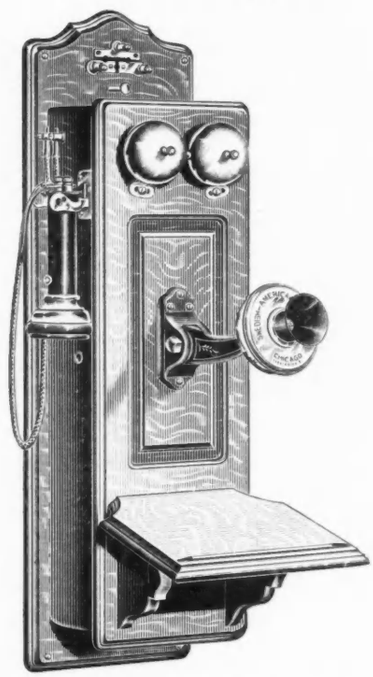
C. H. MACKLIN,
SEC. AND G. M.

A. V. OVERSHINER,
STATE MANAGER.

E. B. OVERSHINER, PRES. AND TREAS.

The officers of the company are: E. B. Overshiner, president and treasurer; Tiodolf Lidberg, vice-president and general superintendent; C. H. Macklin, secretary and general manager, and A. V. Overshiner, state manager. Of the personnel of the company, Mr. E. B. Overshiner, the president, is one of the best known and most popular men in the telephone manufacturing field. Mr. Lidberg is an engineer of high standing, having devoted many years to telephony, spending a number of years in the Ericsson factory in Sweden. Mr. Macklin is a young man of ability and discernment and is rapidly making his way to the front. Mr. A. V. Overshiner has charge of state work and is a man of high attainments. The company's affairs are in the hands of men of sagacity and business ability and its success has been due largely to its officers and their able assistants.

The Swedish-American product is too well known to need extended comment. In the pages following will be seen views of the company's factory, which show how and where Swedish-American apparatus is made. The United States government, after exhaustive tests, pronounced this company's telephones a superior product and a great deal better than the Bell. This in connection with the fact that such leading railroads as the Pennsylvania, Chicago, Burlington and Quincy, Chicago and Alton, Wabash and many others, are using Swedish-American telephones extensively, is a sufficient guarantee of merit.

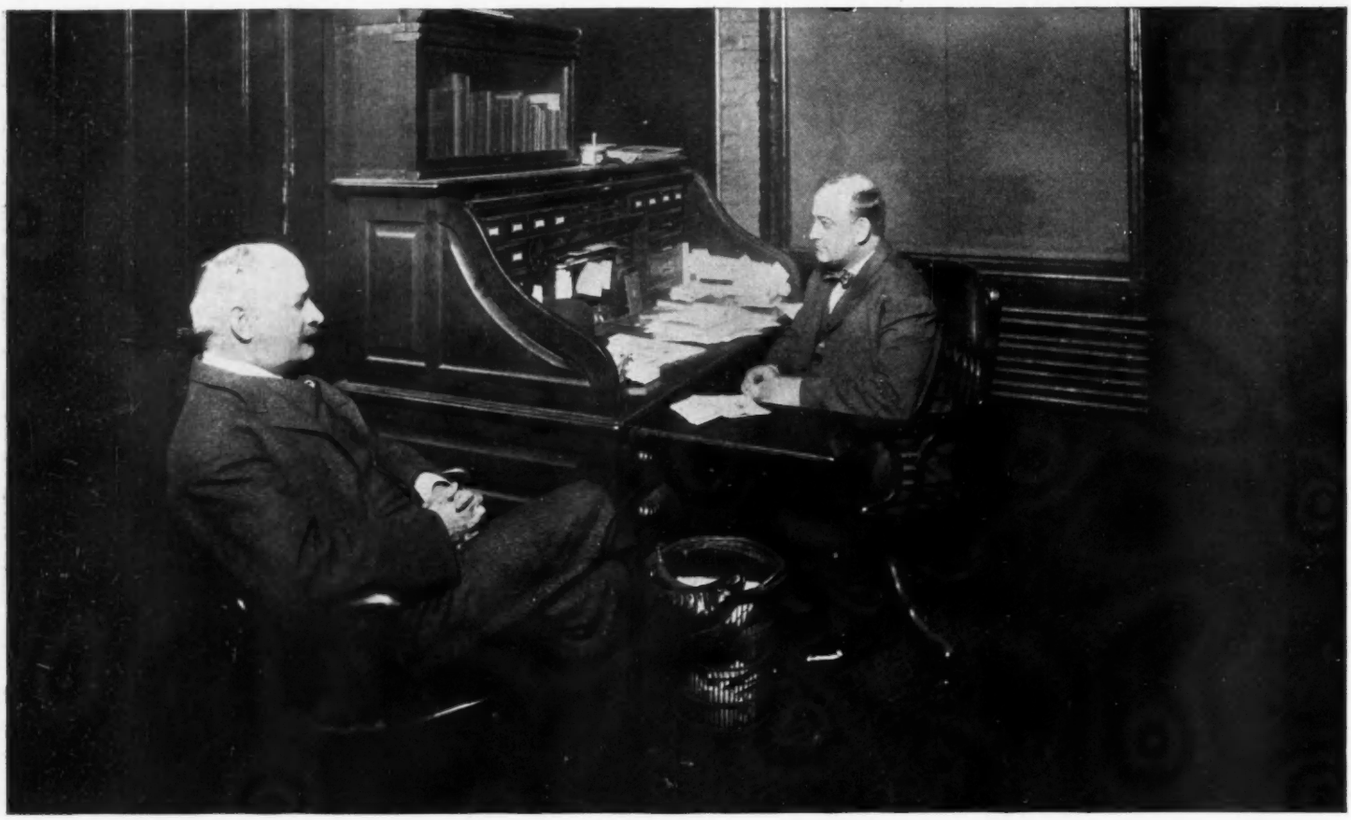


SWEDISH-AMERICAN TELEPHONE.

Swedish-American telephones and switchboards are being adopted by many of the leading companies throughout the United States, who say that for efficient service year in and year out without trouble or expense for repairs that they give perfect satisfaction. The company manufactures everything that goes to make up either a magneto or central energy system. The sales on central energy instruments have been very heavy. One of the main features of this company's business is the rural line equipment. The unusual rigidity and substantiability of construction always appeal to the farmer as he generally uses good common sense in purchasing apparatus.

The company guarantees its apparatus and invites correspondence from prospective purchasers.

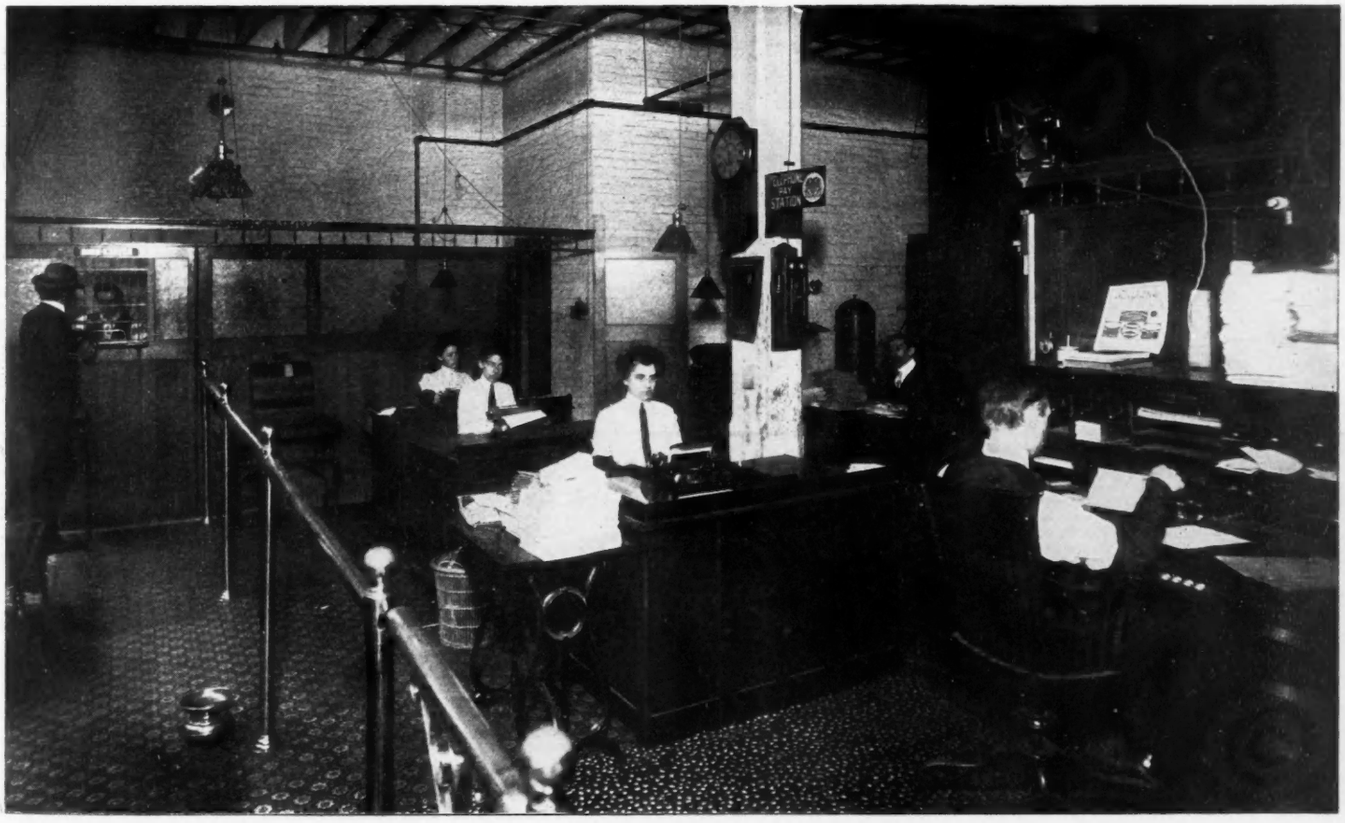
MANUFACTURING PLANT OF THE SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



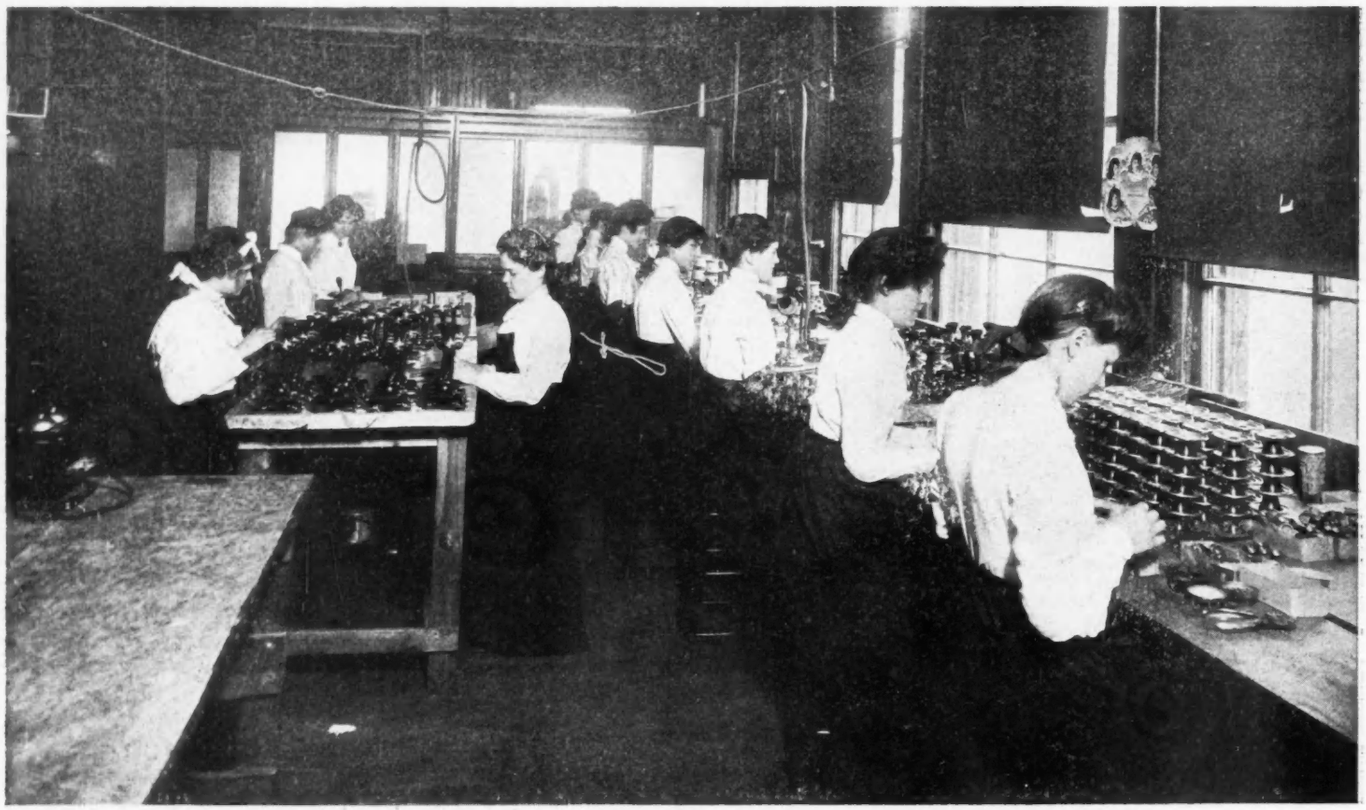
PRESIDENT'S OFFICE, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

GENERAL MANAGER'S OFFICE, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

SUPERINTENDENT'S OFFICE, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

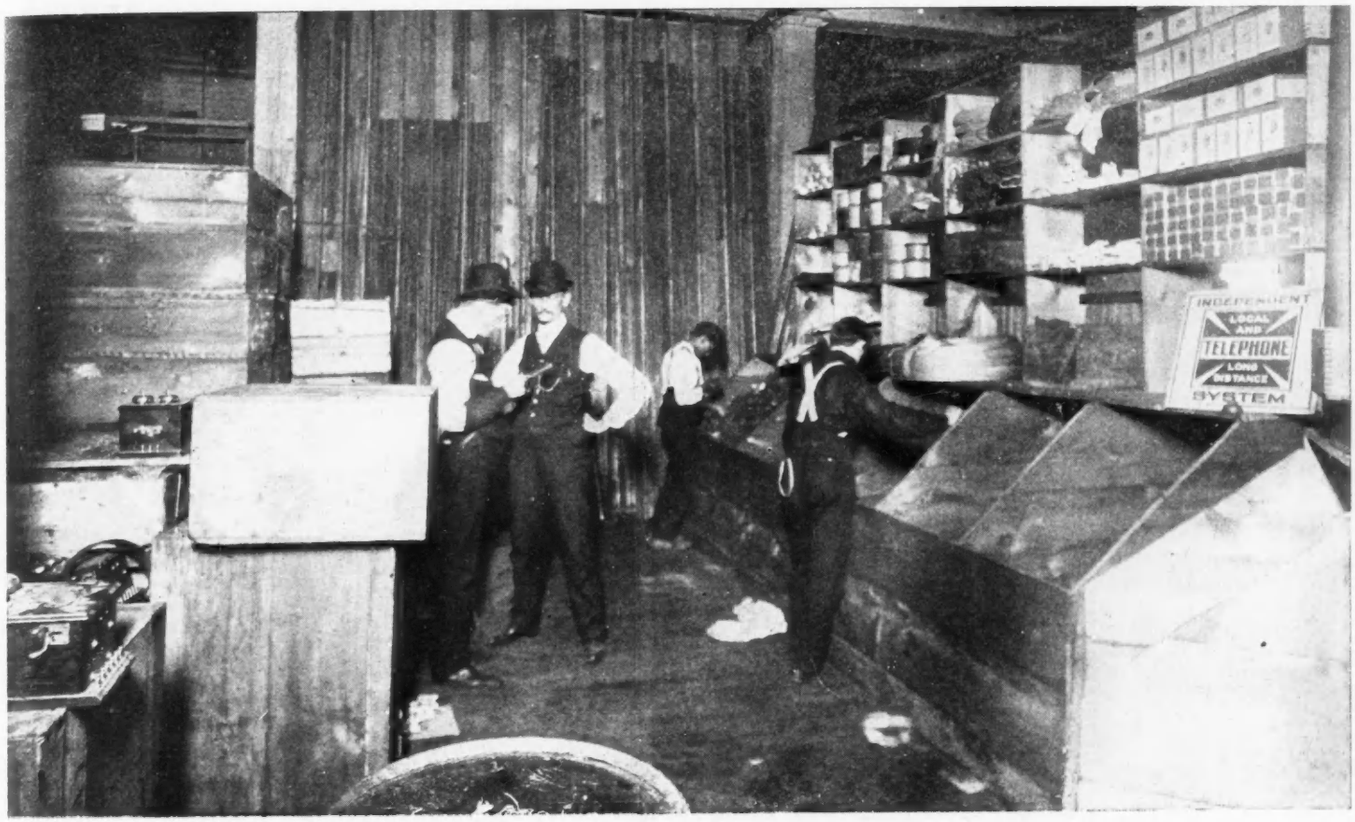


GENERAL OFFICES, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



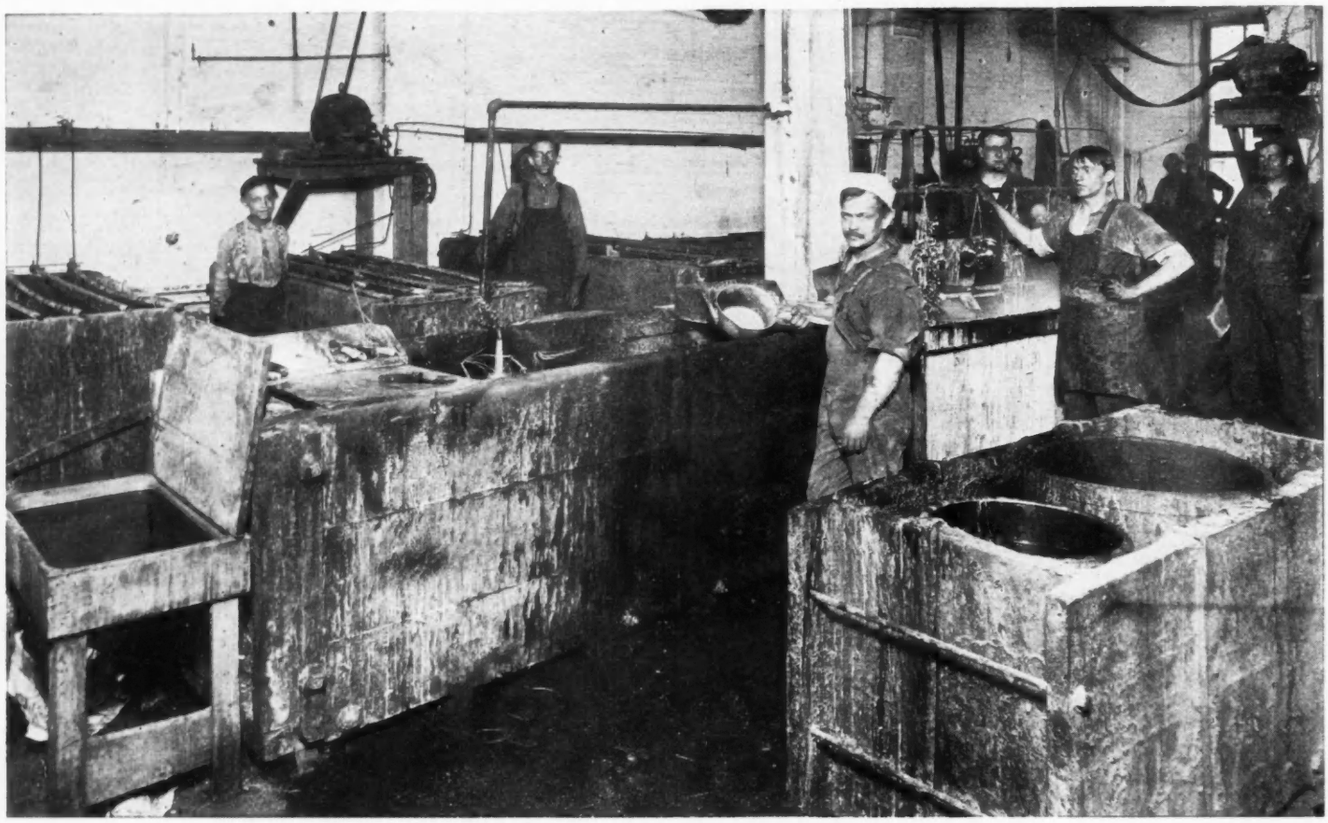
WINDING DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

TELEPHONE WIRING DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



VIEW IN STOCK ROOM, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

PLATING DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

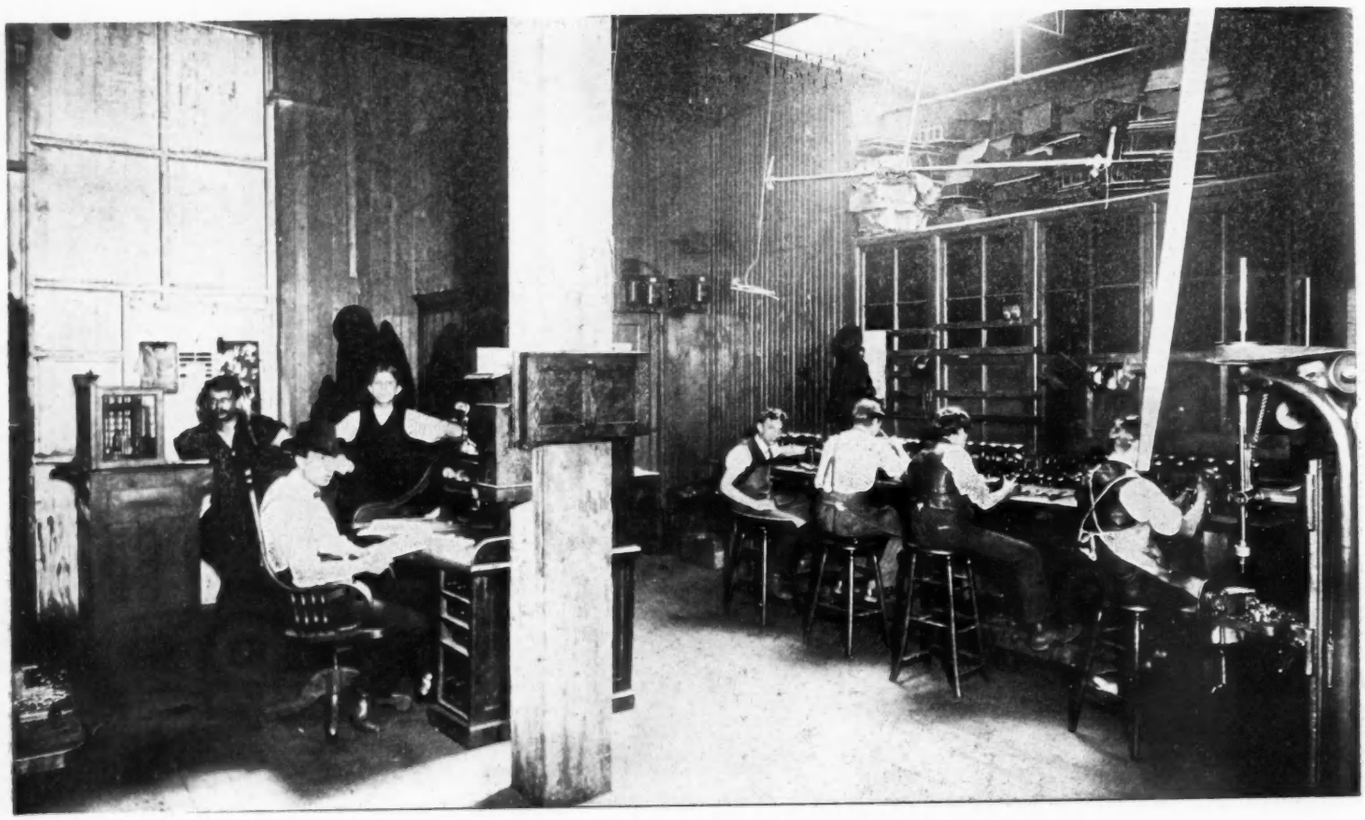


PLATING DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

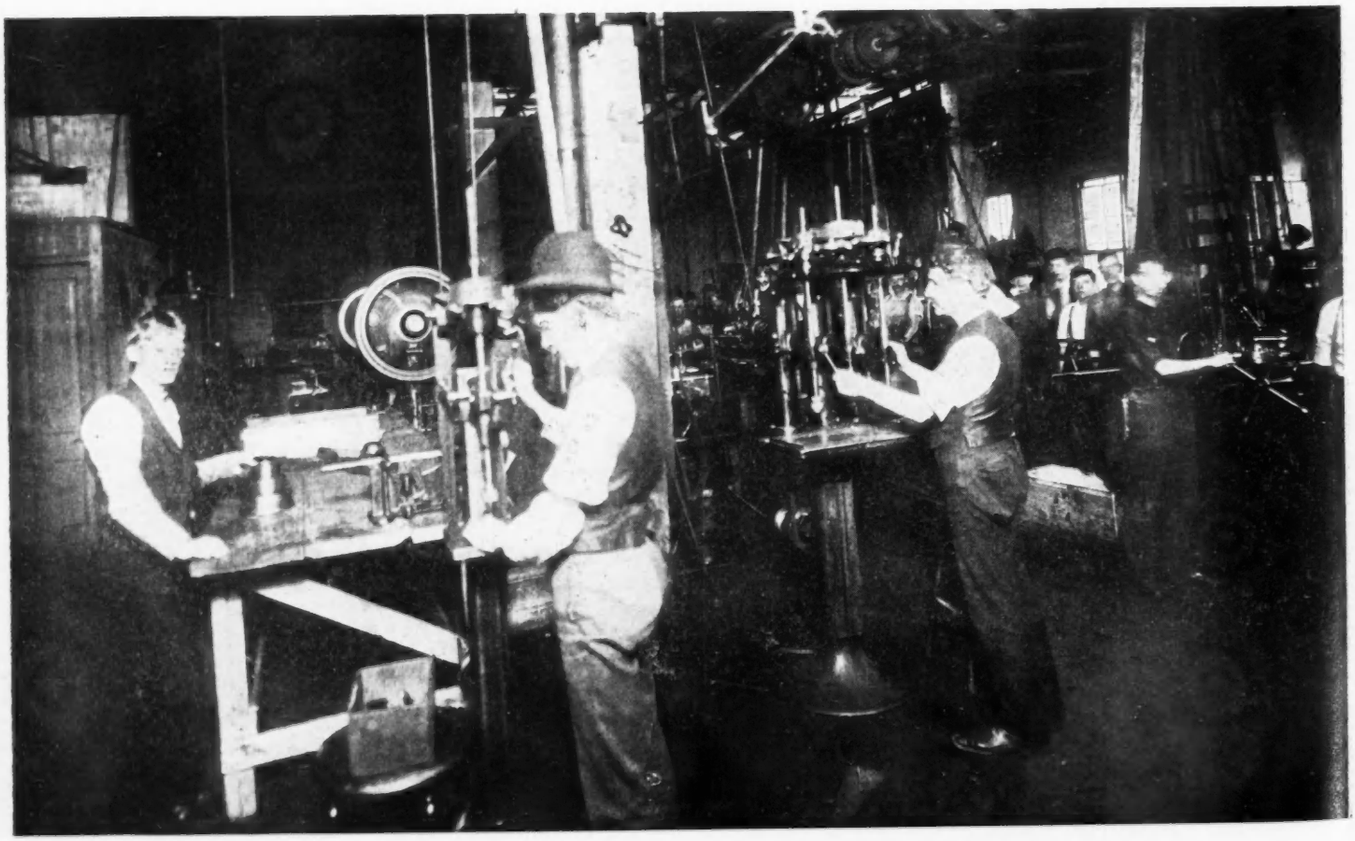
VIEW IN TELEPHONE ASSEMBLING DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

SWITCHBOARD ASSEMBLING DEPARTMENT, SWEDISH AMERICAN TELEPHONE COMPANY, CHICAGO.

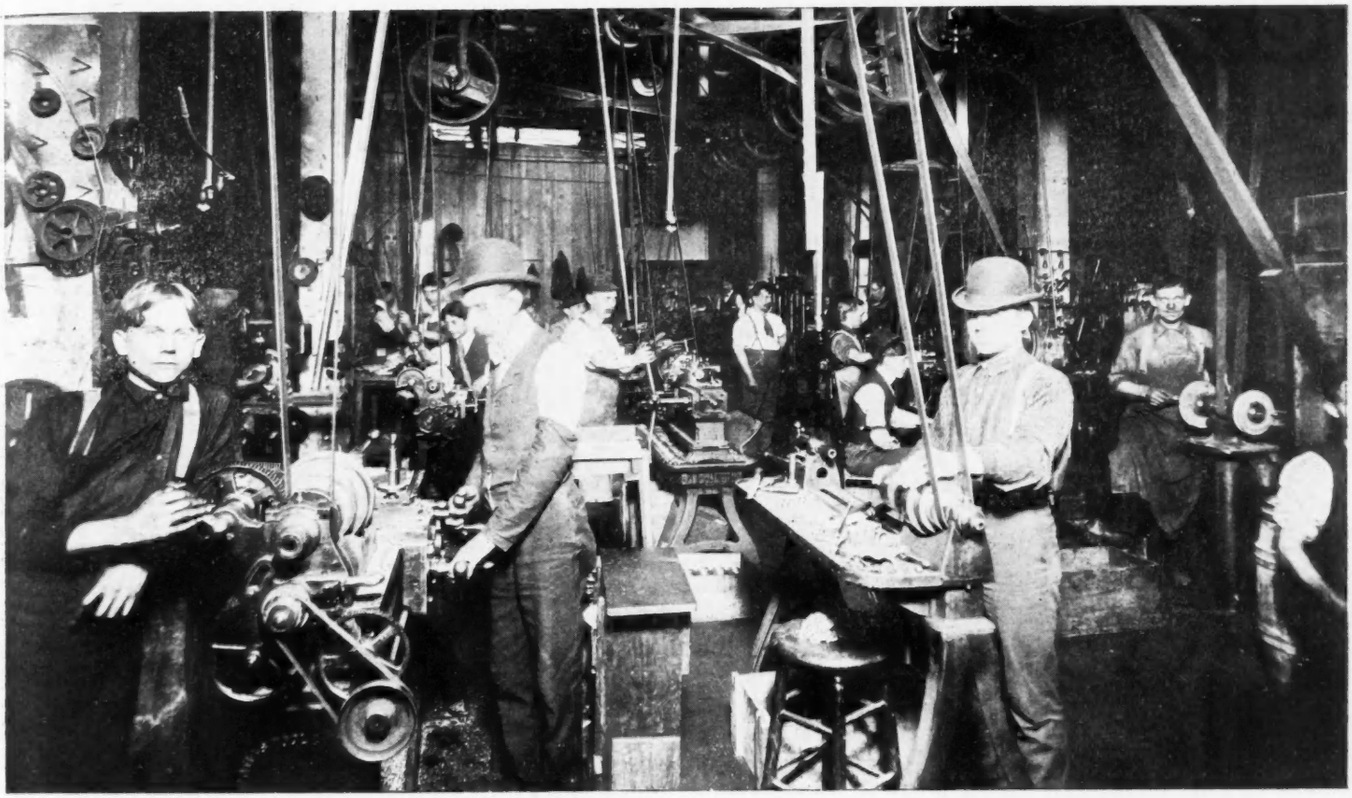
VIEW IN SWITCHBOARD DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



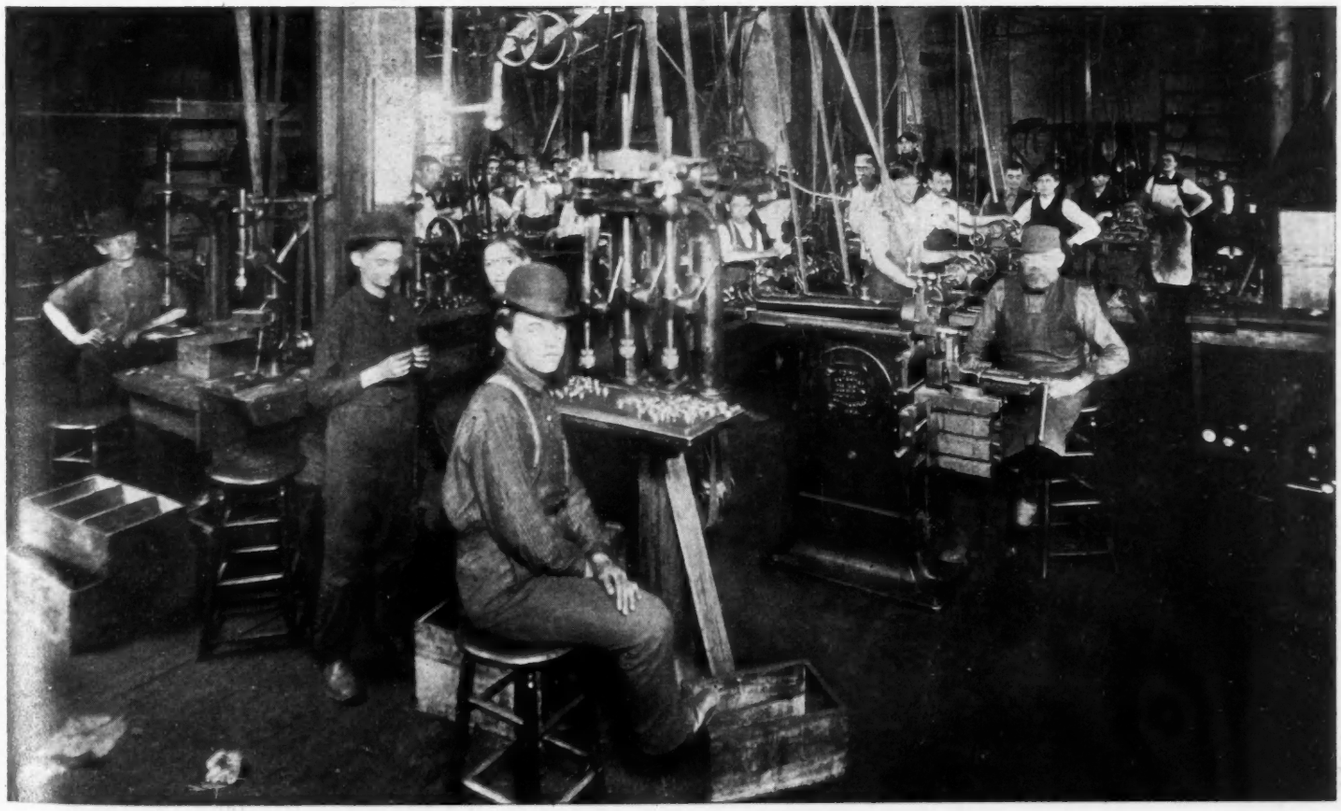
FOREMAN'S OFFICE, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



CORNER OF MACHINERY DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



VIEW IN MACHINERY DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.



SECTION MACHINERY DEPARTMENT, SWEDISH-AMERICAN TELEPHONE COMPANY, CHICAGO.

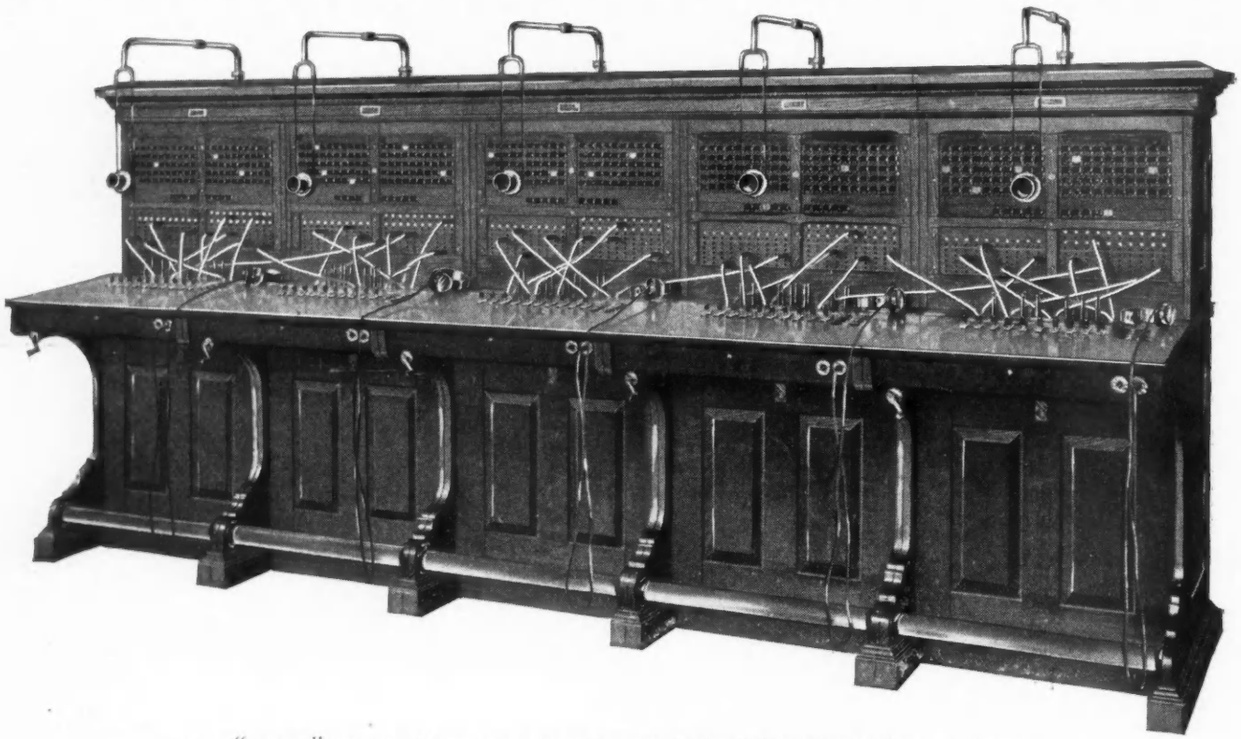
A New Departure in Switchboard Manufacture.

Among the principles of manufacturing that have made the United States pre-eminent have been standardization and unification of the manufactured output.

These principles have at last struck the telephone manufacturing field and the North Electric Company of Cleveland, Ohio, has brought out a series of so-called Unit Type Switchboard, which were introduced as a complete line at the recent national telephone convention in Philadelphia, creating a great deal of interest and comment.

The company is also showing an interesting line of switchboards for use in the country districts, which are marvels of completeness and convenience.

The North Unit Type Switchboards consist of single sections or "units," uniform in style, and so designed that they can be placed side by side, making a continuous frame, with every facility for the future installation of trunking



FIVE "UNITS" OF NO. 10 SWITCHBOARD WITH LAMP SIGNAL TRANSFER SYSTEM.

circuits, toll line apparatus, etc., as the growing needs of the exchange may require.

They can be furnished as magneto call, target or lamp signal boards, in 100 or 200 line "units."

The standard cabinet is made of well seasoned and well finished quarter-sawed oak, but can be furnished in other woods to order.

The keyboard is hinged and equipped with a lock, and the plug board is protected with belt leather. The plug seats are cushioned with rubber, reducing the wear on the cord, and rendering noiseless the return of the plug to its seat.

Removable panels in the front afford ready access to all the interior mechanism and wiring, making the cabinet practically dust-proof when closed.

These boards are equipped with a rigid steel frame upon which is mounted all line signals and jacks in such a manner that they are readily removable for inspection or repairs without disturbing the balance of the equipment. An additional steel frame is placed in the upper portion of the cabinet for the reception of repeating coils or condensers.

The No. 7 jacks, used in the boards described, are put up in banks of 10, built on 1-inch centers horizontally, and ½ inch centers vertically. The springs and sleeve, made of the best German Silver spring metal, are mounted in hard rubber strips, the individual springs of each jack being separated by mica. These strips are securely fastened to a base plate of aluminum, insuring absolute rigidity. The contact points are of pure platinum wire, firmly riveted through the springs. (Where jacks on ½ inch centers horizontally are desired, the No. 8 is used.)

The ringing and listening keys have roller bearings, reducing to a minimum the wearing of parts. The springs are platinum pointed and similar to those in the jack, both in material and method of mounting. Each key is self-contained and easily removable. Line signals are described in connection with each individual type of switchboard. The plugs must combine uniformity, compactness, strength and rigidity. Accurate machinery and close attention to details and design have resulted in a plug meeting all requirements, securing a close fit in the jacks, and perfect insulation of the circuits. The switchboard cords are carefully made, great flexibility being secured, with a maximum of protection for the conductors. The connections at both ends are so arranged as to remove all strain on the terminals. There is no more durable cord produced. A terminal rack is placed in the lower portion to which are led all circuits, the terminals being plainly designated by numbers and letters. The installation of the board is thus rendered an easy matter.

The operator's set consists of a suspended transmitter of long distance type, adjustable in all directions. The operator's receiver is of the bi-polar type, particularly neat in appearance and very light, as well as efficient. The cord, attached to the receiver by concealed binding posts, terminates in a standard plug. A special jack is provided, opening the local transmitter circuit when the plug is withdrawn, thus effecting a material saving in battery consumption. A powerful hand generator is provided, although boards are also wired for the use of a power generator, the switches being located on the front of the board

below the key shelf. The generator can be furnished to supply both direct and alternating currents where selective ringing party lines are used. A test buzzer is installed, enabling the operator to test and locate many of the more ordinary cases of line trouble.

A reliable, platinum pointed, vibrating bell is mounted on the inside of the cabinet with a suitably located switch for controlling the same. Transmitter batteries are furnished with all fully installed sections of "unit-type switchboards."

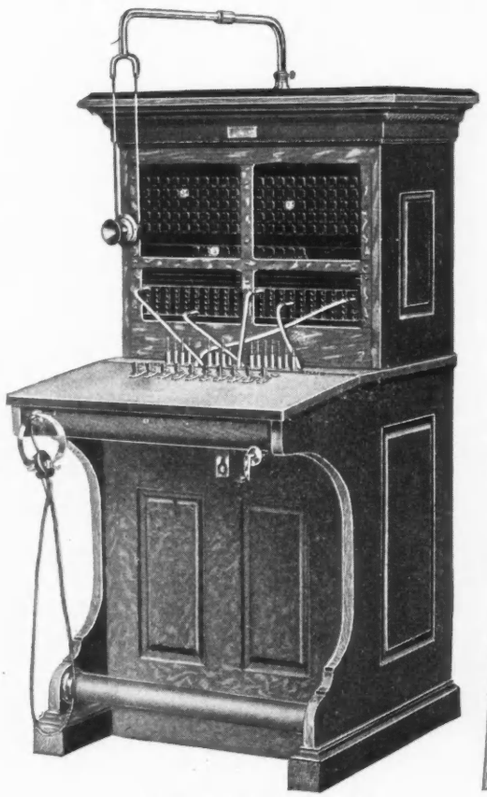
Removable side mouldings are used so that any number of "units" when placed together present the appearance of a single frame.

The company manufactures several styles of "unit-type switchboards," designed for magneto call work, among the most popular of which are the No. 10 and No. 11.

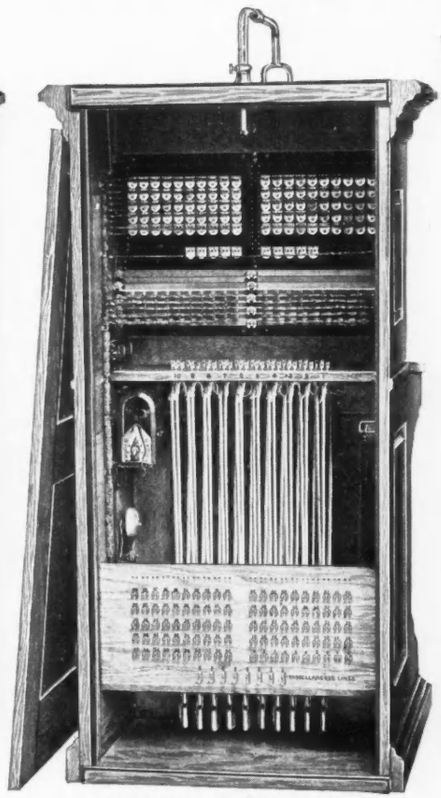
The No. 10 switchboard has installed the No. 4 tubular drop, mounted ten on a strip, each strip or individual drop being detachable. The drop coil is protected by a shell, made from solid Norway iron rod (not tubing or pressed steel), bored out. This construction, although expensive, insures great impedance and absolute freedom from residual magnetism or cross talk. In this shell is placed the coil, the terminals extending through the armature in the rear. The latter is balanced and mounted on pivot bearings in such a way that the range and freedom of action is capable of adjustment.

A neat shutter is used which, when falling, closes a local circuit, operating the night bell.

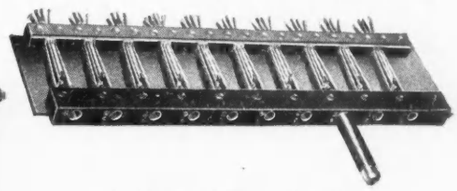
In both the No. 10 and No. 11 switchboards there is



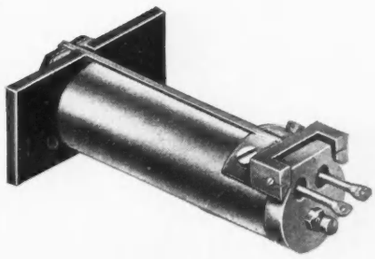
NO. 10 SWITCHBOARD.



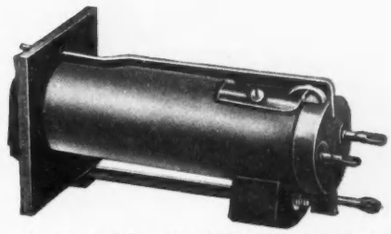
NO. 10 BOARD—REAR VIEW.



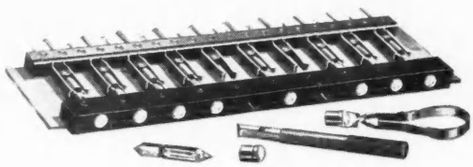
STRIP OF NO. 7 JACKS.



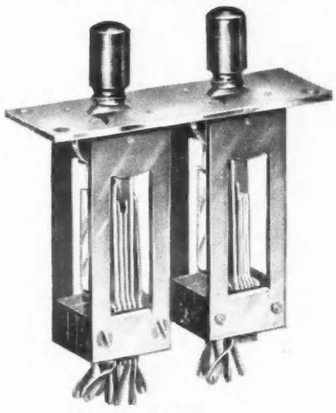
TUBULAR DROP.



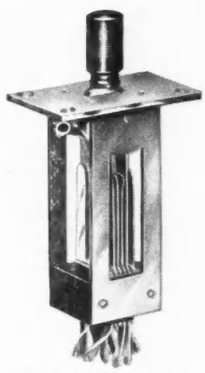
RELAY DROP FOR COMMUNITY BOARDS.



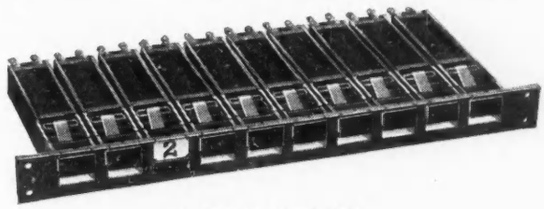
STRIP OF LAMP JACKS.



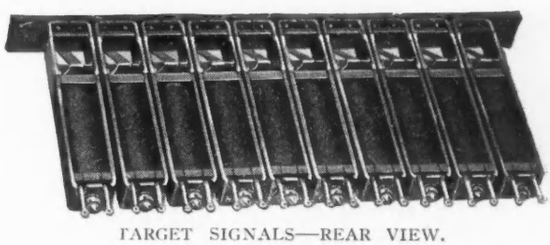
DOUBLE KEY.



SINGLE KEY.



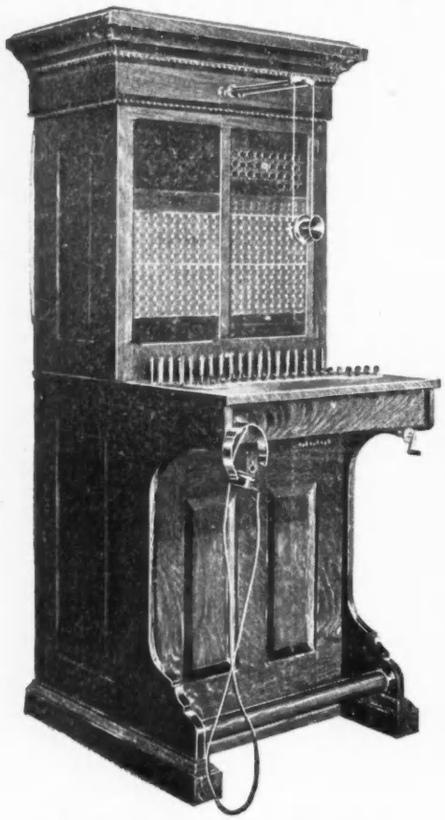
TARGET SIGNALS.



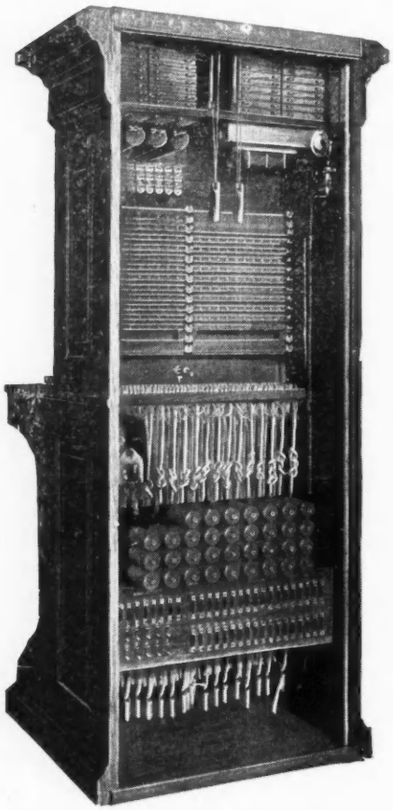
TARGET SIGNALS—REAR VIEW.

space available for the addition of 40 line drops and jacks.

The No. 11 switchboard has a capacity for 200 line equipment. With the exception of the higher cabinet used, necessitating a different style of transmitter support, the board is similar, both in general character of installation and the elements used in the No. 10. For particulars as to elements used see preceding description.

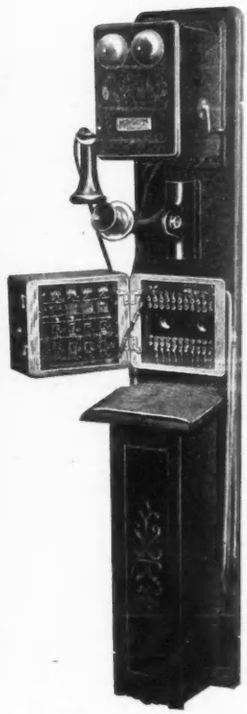


200 LINE LAMP SIGNAL BOARD.

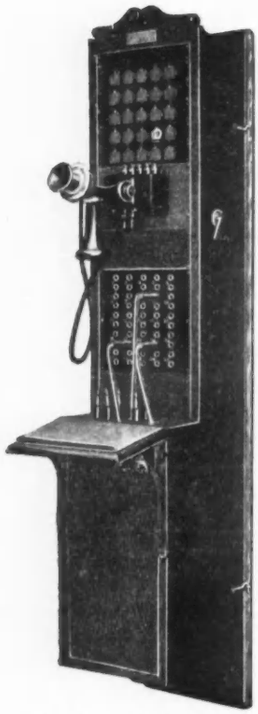


REAR OF LAMP SIGNAL BOARD.

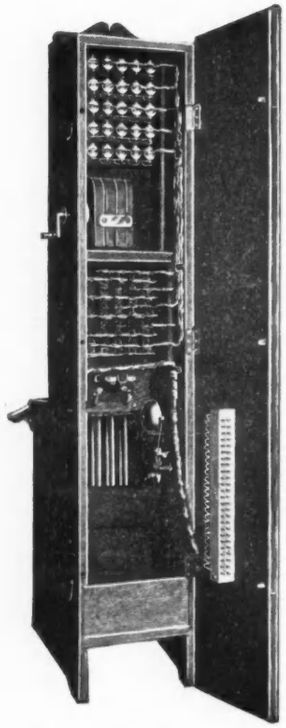
10 LINE BOARD.



10 LINE BOARD—OPEN.



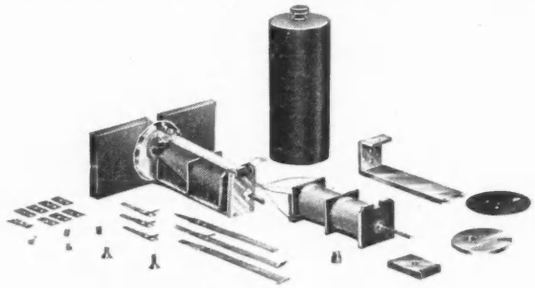
25 LINE BOARD.



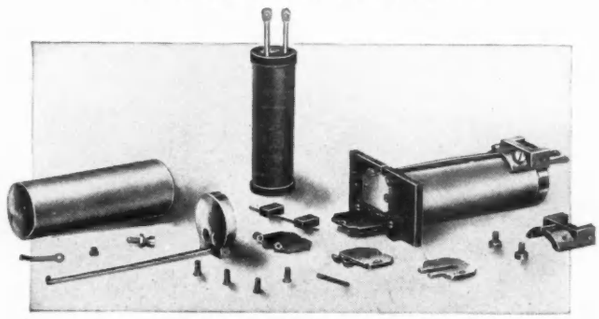
25 LINE RELAY BOARD—REAR VIEW.

During the last two years, common battery (sometimes called central energy) and supervisory systems have deservedly come into favor, the later types having been so perfected that their installation in small, as well as large exchanges, is considered practical and desirable.

Marked economy and a material increase in the speed of operation and service rendered is secured. This is due to the introduction of supervision in the cord circuits, that is, signalling apparatus, bearing such a relation to the circuits that the operator knows at a glance, without cutting



DUST PROOF RELAY AND PARTS.



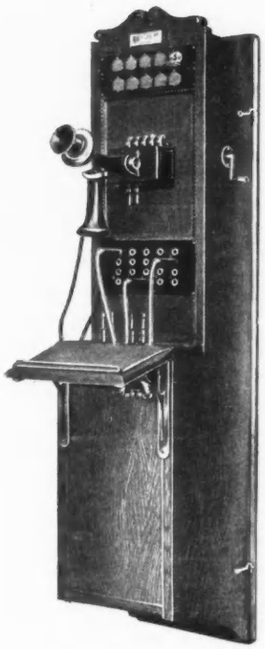
TUBULAR DROP AND PARTS.

in on the cord circuits, whether the called subscriber has answered, whether either or both have finished the conversation, and whether either is desirous of a subsequent call, a marked improvement in service resulting.

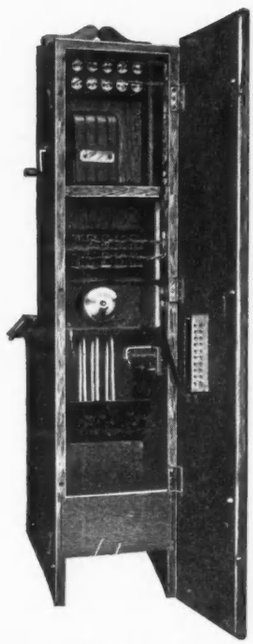
Experience has demonstrated that an operator can handle double the number of lines with the common battery, or supervisory system (having complete or double supervision) that is possible with magneto call switchboards.

Managers desirous of replacing magneto call with common battery, or supervisory systems, should remember that the central office equipment can be first re-equipped, retaining in service for a time the old magneto call telephones, with a slight change in the local circuits. In common battery plants, both local talking and common battery 'phones can be used at the same time. It is, however, both economical and desirable to replace old 'phones as rapidly as possible, they being frequently remodeled for bridging work on rural lines, or sold for private lines.

Several types of power plant equipment are furnished,



IO LINE BOARD.



IO LINE BOARD—OPEN.

ranging from the simplest, consisting of primary batteries, and Warner or small power generators, and simple switching devices, up to the plants equipped with marble power switchboards, with knife switches, measurnig instruments, rheostats, and a full equipment of storage batteries and generators in duplicate.

These switchboards can be equipped with toll and magneto call apparatus and combination cord equipments, capable of operation either with toll or local connections. The systems are so balanced as to make possible the use of common return and party lines, and reduce to a minimum all possibility of cross-talk. The circuits and relation of the various working parts are such that current consumption and chances for trouble are materially reduced.

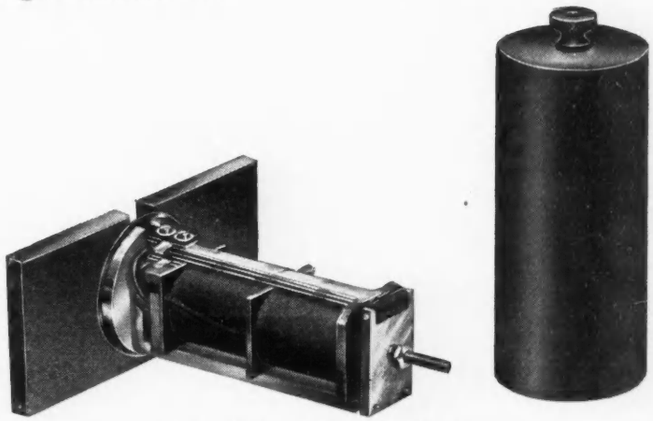
We call attention to the fact that excessive clicks at the subscriber's instrument are not present in these systems.

Target signal switchboards are offered in either 100 or 200 line "units," with additional capacity for 20 line signals and jacks. They are wired for common battery or supervisory systems.

The target signal is self-contained and mounted in strips of 10, so that any individual target, or a complete strip, may be removed without interfering with the balance of the apparatus. It restores automatically by gravity, is extremely simple, and designed to produce only the most positive action. Each line signal is equipped with a removable numbering plate.

The normal adjustment is for working through 1,500 Ohms resistance at a battery pressure of 16 volts. They, however, can be adjusted to work through a much higher resistance where special line conditions require it.

Usually target supervisory signals in the cord circuit are furnished, but lamp signals can be substituted at a slight additional cost.



DUST PROOF RELAY AND CASE.

These switchboards are classified as follows:

No. 12—Having installed 200 line signals and wired for the supervisory system.

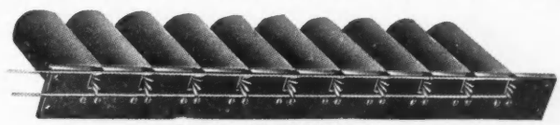
No. 14—Similar in all respects to No. 12, except installed for 100 lines.

No. 20—Ful common battery (central energy) switchboard, equipped for 100 lines.

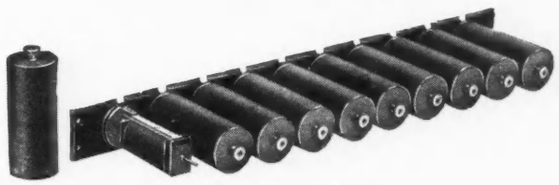
No. 21—Similar to No. 20, except that apparatus is installed for 200 lines.

Lamp signal switchboards are made up in 100 and 200 line "units," and either for full common battery or supervisory systems. Ample space is available for additional lamp signals or the installation of magneto call or toli line equipment.

The tubular type of dust-proof relay used involves



STRIP OF RELAYS.



STRIP OF RELAYS.

those principles in design and construction, which experience has taught to be the most desirable, no effort being left undone to produce the highest percentage of efficiency with the greatest simplicity, mechanically, and a minimum of current consumption.

These relays, protected by a removable, dust-proof tubular cover, or case, are mounted in strips of ten on a heavy metal base, the method of mounting being such that absolute rigidity is secured. They are adjustable with reference to sensitiveness, and entirely free from residual magnetism and other troubles incident to poorly constructed relays.

The lamp jack is of an approved type, similar in general construction to the lamp jacks. Tools for extracting opals and lamps are furnished.

In the interior of the cabinets are installed, so far as possible, all relays, condensers, impedance coils, etc., necessary for the operation of the system used, every precaution being observed to properly identify and mark all terminals, reducing the trouble of installation, testing and inspection to a minimum.

Lamp signal "Unit-Type" switchboards are put up as follows:

No. 18—200 line switchboard, with all necessary relays, condensers, etc., for operating the same on full common battery circuits.

No. 19—100 line switchboard, similar in equipment and circuits to No. 18.

No. 22—100 line switchboard, designed for operation in connection with supervisory system.

No. 23—200 line switchboard, similar in all respects to No. 22.

Magneto call and toll line apparatus are extra, charge being made according to the amount and character furnished.

Rural telephone service has become a necessity, there being a growing demand amongst farmers and others living in the country for this, as well as other conveninces of metropolitan life.

It has proven profitable to install small switchboards at various places in the country, and the types ilustrated herewith have many warm and ardent supporters.

Their capacity ranges from ten to twenty-five lines. They can, however, be furnished with only a portion of the full complement of equipment installed.

The relay type has very largely taken the place of the old style "ringer" switchboard. As each ring is given by the subscriber, the armature of the relay closes a local circuit, operating the night bell only during such time as the subscriber is signalling, the impulses corresponding with those sent. In this way the operator responds to the call only when her particular signal is given. For instance, if the exchange signal is one long and two short rings the operator would not respond when two long and two short, or some other combination of signals were received.

The North Electric Co., 69-79 Frankfort st., Cleveland, Ohio, wil be glad to furnish printed matter giving further details on receipt of inquiry.

THE GIRL-LESS TELEPHONE CENTRAL.

The Globe Automatic Telephone Company, Chicago, has recently made rapid strides in the way of preparing to meet the great demand for its automtaic telephones. Its system is generally known as the girl-less telephone central, each telephone being supplied with a calling device or keyboard by which the subscribers are enabled to make connections to any number and also to connect automatically to any toll lines or party lines. The system has recently been perfected whereby several automatic telephones may be placed on a single circuit the same as other ordinary party line instruments. The company has extended rights to the Automatic Telephone and Supply Company of Oklahoma City, Okla., for the territories and Texas, also to companies in California and other states that the business may be more rapidly pushed.

A large additional amount of capital has been invested in the manufacturing company in Chicago.

NEW KELLOGG RECEIVER.

The demand for a somewhat cheaper receiver than is furnished the big exchanges has led the Kellogg Switchboard & Supply Company to produce a new receiver known as the No. 8, which is illustrated herewith, and is furnished with composition shells. In this receiver the tail piece is not made removable as in their No. 6A, or highest grade receiver, but a cord can be readily repaired by taking the working parts out of the receiver by removing four small screws. This receiver, it is claimed, talks fully as well as the No. 6A, and has throughout the same high grade of workmanship. In fact, the working parts are identically the same, except in so far as attaching the cord is concerned. The company states that it has always opposed, in every way possible, the substitution of any imitation of hard rubber for use in receiver shells and heretofore refused to furnish receivers with this kind of shell. It has, however, recently claimed to have secured a composition which seems to be so much better than anything heretofore obtained that it is willing to guarantee it in all respects. It has the external appearance of hard rubber in its glossy blackness, and is said to retain this appearance almost indefinitely. This grade of receiver is especially recommended to those who feel that the price the company must necessarily charge for its No. 6A is a little more than they can afford. The

NEW KELLOGG RECEIVER.

Kellogg Company does not hesitate to give this receiver its guarantee, which would seem to indicate its faith in this new product.

A WORD ABOUT POLES TO INVESTORS.

It is a fact perhaps not appreciated in all its bearings by independent telephone operators that the price of white cedar poles (freight excluded of course), has advanced in the last three years over one hundred per cent.

This is in part the result of the great demand caused by increased activity in construction of pole lines for the various electrical purposes, but the chief cause is the fact that the Michigan and Wisconsin cedar forests are becoming exhausted from the drain that has been put upon them and producers are compelled to buy the uncut cedar at rapidly appreciating values. Another factor that has increased the prices of cedar poles is the ever increasing length of haul from the stump to the railroad. A very few years ago, a long haul was a distance of a mile and a half; two miles was unusual. Now, four miles is considered not an unfair distance and hauls of six and even seven miles are made.

We all know that the Independent telephone movement is now in full swing, but that it has more than fairly begun to fill the popular demand for telephones, no one will claim. In other electrical industries development is also exceedingly active and will be for many years to come.

Every year will find a decreased supply of poles in the cedar swamps, and every increasing length of haul for the producer and a demand on the part of purchasers that certainly will not decrease.

The cedar producing area in the United States is exceedingly limited, east of the Rocky Mountains; the states of Michigan and Wisconsin, together with some Minnesota swamps, practically monopolizing the now comparatively limited supply of a never plentiful timber growth.

Bearing these facts in mind, it is clear that the question of pole line renewals is an important one to consider from the view point of cost at the time the renewal must be made.

Engineers of wide experience have expressed the opinion that a line constructed of four and five-inch top poles is far from being the investment that a line constructed of six or seven-inch top poles is, taking into consideration the difference in price of the poles themselves (of course labor, wire, etc., will cost the same in either case). We are referring now particularly to long lines in which twenty-five-foot poles are used.

The advantage of a six or seven-inch top pole is not by any means entirely in the size of the top. The butt's the thing. The increased stockiness of the pole mentioned means a very materially longer life to the line and less repairs and renewals. It also permits, by reason of its greater stiffness when set, and consequent ability to withstand strain, of running a line around a curve of large radius without the necessity of guying, where five-inch poles would require the additional expense involved by that method of construction. The small additional cost of the larger pole will prove in a few years an investment worth several times the additional initial outlay, while in the reverse case, "money saved will be money lost." A little higher price, and a small additional freight charge paid now will be a source of congratulation before much time has elapsed.

Sometimes the Bell Telephone Company is right. Experience extending over many years in building and maintaining pole lines means something. The Bell company licensees rarely if ever use anything smaller than a six-inch top.

NEW TELEPHONE SWITCHBOARD.

The Western Electrical Supply Company is placing a new telephone switchboard on the market, regarding which they make many claims of superiority. The combined drop and jack is said to be of very novel construction. The superiority of this device is claimed to not only lie in the superior mechanical design, but it has been proven that by reason of the armature being mounted on the front end of the coil, and the manner in which it is constructed, gives it the highest electrical efficiency. From extensive tests it is claimed that only one-fortieth of the electrical energy is necessary to operate this drop that is required by others. From the numerous orders and inquiries the company is receiving, it is apparent that the trade at large is convinced of the genuineness of its claims.

The simple construction of this combined drop and jack appeals very strongly to the practical telephone man, and combining these features with the compactness and general high grade construction of this switchboard makes it an interesting study to telephone engineers who from time to time have noted the progress and the improvements made in telephone apparatus of every description tending to a higher state of perfection and efficiency.

It is said that the manner in which the armature is placed is a decided departure from other devices of this kind. The drop shutter when in the retained position rests squarely upon the armature itself, completely doing away with the rod that is customarily used for holding the shutter in place.

Another decided advantage is that this armature does not operate on any hinge, but rests on its own weight on a knife edge at the bottom, which is on the principle of the most accurate weighing devices in common use. The space occupied by the complete structure comprising the combine drop and jack is only one by one and one-half inches, which makes this switchboard very compact, and with the mechanical restoring device, which is absolutely positive in its operation, it is claimed that this board is the most rapid in service of any in use.

THE BAIRD BATTERY GAUGE.

Since the general introduction of dry batteries in telephone work as well as other lines of open circuit work, the need for an instrument to determine the condition of the dry cell has been imperative. The demand has been catered to by manufacturers offering everything from a voltmeter at $75 down to battery gauges at $3 to $5, and now

BAIRD BATTERY GAUGE.

the Baird Manufacturing Company of Chicago has entered the market with a complete portable astatic galvanometer, with scale calibrated for dry cells, at a selling price of $1. This latest product of the Baird factory meets the public with a popular article at a popular price. The needle is jeweled, the construction throughout simple and reliable, and the weight is but four ounces. The illustration is full size.

SUMTER CONVENTION EXHIBIT.

The conventon exhibit of the Sumter Telephone Manufacturing Company was located in suit 900 Walton Hotel, Philadelphia. It was most attractively arranged and was a striking illustration of the rapid growth of Southern manufacturing industries and their ability to compete with the entire field. There are many still who do not realize what a large telephone manufacturing industry has grown up at Sumter, S. C., the product of which finds its way to all parts of this country, Canada, Mexico and foreign countries.

As is generally known this company enjoys the distinction of being one of the few concerns that manufactures in its own plant everything that enters the construction of its entire line of apparatus, and its exhibit, while showing but a few styles of instruments made, gave an idea of the variety and quality. The company exhibited a line of magnetic and central energy telephones for exchange and interior systems together with its "Bulls-Eye," combined drop and jack with inwardly falling automatically self-restoring shutter. A number of parts and small appliances showed the careful attention to detail in design and construction that has made the reputation for "Sumter" goods.

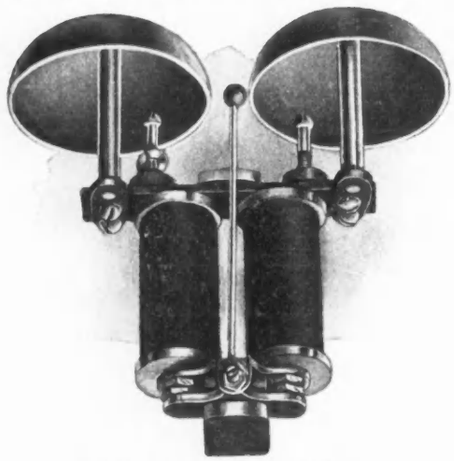
A most striking feature of this exhibit was the exquisite woodwork; each cabinet being of an exceedingly handsome finish peculiar to the product of this company.

The specimens of curly walnut attracted unusual attention and many were surprised to learn that these beautiful woods were produced from the log by this company, who operate a modern band saw mill in connection with its otherwise very complete Sumter plant. This company reports a crowded order book and even with its large and excellent factory facilities finds it difficult to keep up with the rapidly increasing demand for Sumter apparatus.

The company distributed a unique and handsome souvenir composed of a bow and streamers of the national colors held together with a stick pin upon which was mounted a "Bulls-Eye" drop shutter number. These were exceedingly popular and sought after by all.

THE KELLOGG RINGER.

In the accompanying illustration is shown a new ringer recently placed upon the market by the Kellogg Switchboard & Supply Company, and which is a decided novelty to the telephone public. The company states that it is only after a study of this subject, extending over a long period of years, that it has been produced. The methods heretofore used of obtaining the proper adjustment of the armature of the ringer have, to say the least, been crude. The armatures have been by various means actuated, either by a screw driver, wrench or perhaps a hammer, to approach or recede from the pole pieces in order to make the ringer



NEW KELLOGG RINGER.

more or less sensitive. This new ringer embodies the decidedly new feature of letting the armature remain in its place and cause the pole pieces to move toward or from it when the adjustment is made. Screw extensions are placed in the end of each core, which may be readily moved toward or from the armature by an ordinary wrench, and afterwards locked in place by a lock nut, both of which are shown in the illustration. It is at once the simplest form of adjustment ever produced, and is not only substantial, but affords an extremely delicate adjustment. The ringer has been made self-contained. The gong posts are mounted on the same frame as the ringer magnets, and no dependence need be placed on wood screws entering the lids of the generator box for maintaining the adjustment of the gong.

LARGE COMBINATION HOTEL TELEPHONE SYSTEM.

The Keelyn Telephone Manufacturing Company has just furnished what is said to be the largest inter-communicating telephone system in the world. It comprises about 1,600 telephones and inter-connects the various hotels, grounds and villages of the "Carlsbad of America," as the famous resort at West Baden Springs, Colonial and French Lick Springs, Indiana, are known. Illustrations of these telephones are shown elsewhere in this issue. The instruments are all finished in highly polished mahogany and are of the long distance central energy type. They all contain long lever hook switches, bi-polar receivers, special induction coil transmitter, and a special push button for giving ringing signals. Each instrument has mounted upon it a vibrator double-gong bell of a special pattern designed and controlled by the Keelyn Telephone Manufacturing Company. This telephone system is said to be a novelty. It provides inter-communicating between guests in each of the rooms of the various hotels, the extent of which can best be judged by the fact that there are 665 of these telephones in the guest rooms of one of the hotels. Each of the other hotels is likewise supplied to its capacity. The various parks and grounds, including the golf links, tennis courts, casinos, club houses, springs, theaters, gymnasiums, dairy farms, stables and hundreds of other points of interest in the villages are supplied with telephone stations of these instruments. The lines lead to the central office of the public telephone exchange, where connection is had with the outlying cities through the long distance telephone systems.

This telephone system involved considerable competition by nearly all of the telephone manufacturers. The plans submitted by Mr. J. E. Keelyn of the Keelyn Telephone Manufacturing Company were accepted and he was awarded the contract.

THE KELLOGG CATALOGUE.

In reviewing the new Kellogg catalogue Profitable Advertising, an authority on good advertising, says:

"The Kellogg Switchboard and Supply Company, Chicago, has published its first general catalogue, and while we are not up on the details of the telephone business, it strikes us that this catalogue reflects much credit on the concern, and also on F. L. Martin, the advertising manager, who prepared it. The book starts with an introduction setting forth the aims of the company, and this is followed by a few remarks on "Factory Facilities and Methods" and "A Word About Kellogg Telephones." Then come the illustrations and descriptions. The former consist chiefly of half-tone reproductions of photographs, and are very numerous. The arrangement is good, each page being made up in such a manner that illustrations and text present a symmetrical appearance. Moreover, the text is excellently written, giving the intelligent reader a definite idea of the articles described."

IT WORKED ALL RIGHT.

"Maria," said a business man residing in the suburbs to his wife, "you have been wanting a telephone in the house for a long time. The workmen will come and put in one to-day. Call me up after they have gone away, to see if it works all right."

Late in the afternoon there was a call at the telephone in his office downtown.

Putting the receiver to his ear he recognized the voice of his wife in a somewhat high key.

"Is that you, James?" she asked.

"Yes."

"Will you please go out right now and mail that letter that I gave you this morning?"

He had forgotten it, of course, and obeyed.—Philadelphia Times.

ALUMINUM.

The production of aluminum in the United States during 1901 amounted to 7,150,000 pounds. The price of aluminum per pound remained practically stationary throughout the year, although the demand for the metal increased. The total imports of all forms of aluminum in 1901 amounted to $909,748, as compared with $15,444 in 1900.

W. C. STERLING & SONS.

Look back for the last twenty-two years and see the vast changes that have taken place in the way of transmitting messages by wire and transporting people by rail.

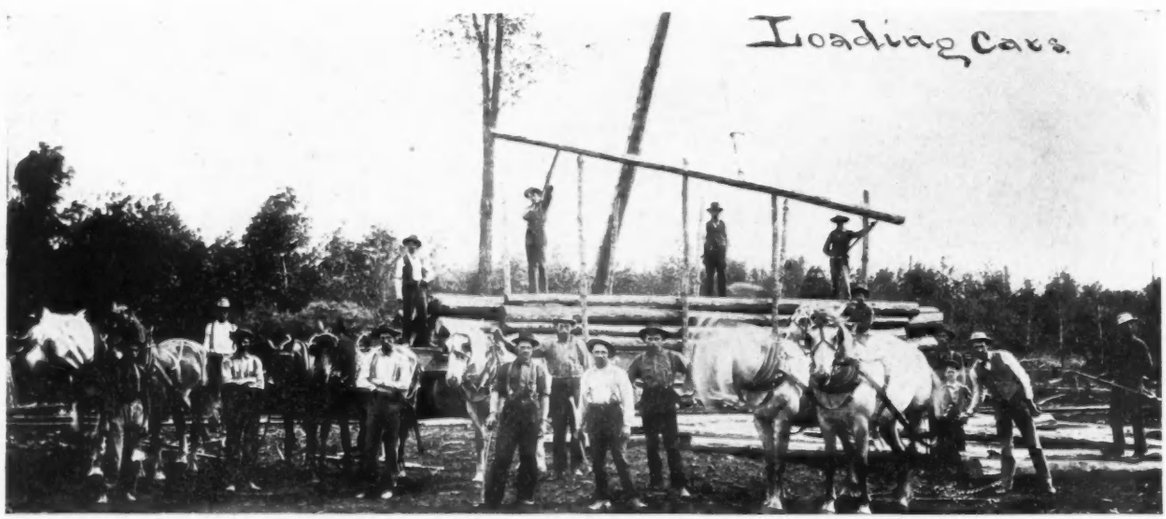
W. C. STERLING & SON'S WINTER CEDAR CAMP.

The cedar firm of W. C. Sterling & Son, which has been selling cedar poles and ties for that length of time, could write an interesting history of the advancement of some of the older companies, including independent telephone companies, electric railway companies, telegraph and steam railroad companies and electric light plants, during this time. This old firm has shipped poles and ties into nearly every state east of Colorado, from Texas and Louisiana into Canada and the New England states. They have not limited their shipments to the United States, but have shipped poles to South America and have just made a large shipment on an order to Egypt. It seems remarkable to ship this long distance, but the telegraph and telephone companies of Egypt have experimented with all kinds of wood,

and have investigated all the different kinds for poles in this country, and have finally decided that our northern white cedar is the best lasting and strongest wood, and gave them the order after their tests.

Northern white cedar poles are preferred by the old telegraph and telephone companies who have been operating for years and have experimented in all kinds of wooden poles. They do use some chestnut, juniper, southern wood and cypress in territories where they grow, but most of their stock is shipped from their northern yards to all parts of the United States.

Sterling & Son are now shipping 150 cars of poles into New York state to one large telephone company and making several shipments to Oklahoma Territory, Iowa, Texas and Missouri. Their largest trade is in the central states. They have some large contracts for cedar ties, running over 100,000 each and are receiving some very good orders from electric roads.



The cedar business has grown to such an extent that there are now a great many concerns in the business, but not so many large ones as it requires 80,000 to 100,000 poles carried in stock to take any large contract and be ready to fill it as fast as the poles or ties are wanted.

This firm carries a stock of this size most of the time, as poles are coming down the rivers to their yard during the spring and summer. They are also continually shipping in by rail. In handling such a large stock they can offer a better quality to the trade than the smaller dealers, as they have a larger stock to select from, and have so many ways of using up crooked stock in the manufacture of shingles, posts, ties, lumber, paving, house blocks, etc., that they can sort their poles in length and sizes and take out any that are not merchantable and that do not come under the specifications of the N. W. C. A., and manufacture them into some of the above named articles and still make a profit. They have yards on the different railroads in Michigan and are so enabled to get some line of cars at one of their yards for prompt shipments. Their largest yard is at Omer, Mich., and they have yards all along the D. & M. and Michigan Central Ry., and some on the P. M. and G. R. & I. Ry., where they sort and pile stock.

Competent authorities estimate that there are 20,000,000 telegraph, telephone, electric light and electric railway poles standing in the United States. It will take 2,000,000 poles per year, averaging the life of a pole 15 years, for the maintenance of these pole lines. The value of cedar stumpage is rapidly enhancing in value, due to the decreasing territories of supplies and the increasing demand.

In many of the trees cut for poles, defects are found, and they are then manufactured into ties, posts, shingles, etc. A tree suitable for a pole is carefully trimmed smooth, peeled, knots trimmed smooth with a draw knife, tops and butts sawed square and brought into the yard, piled in its respective pile, inspected when manufactured, again when

brought into the sorting yard and a final inspection when loaded. This is the case with W. C. Sterling & Son's yard, and they are proud of their reputation of furnishing a fine grade of stock to the trade. The swamps are well frozen up in November and the teams are able to enter them and draw out the cedar on the iced roads. All along the main track, stations and side tracks of the Northern railroads, the winter's output is piled and the woodman's work is finished. The pole man must then concentrate his stock by loading cars along the line and shipping into his main yards, assorted in piles, each length and size tops by itself, and after seasoning are ready for shipment to the firm's customers. The cost of inspecting, loading, repiling, sorting, reshipping, shrinkage on size tops, is very large, and the expense is gradually increasing as the dealers have to go farther north and away from the railroads, and freight rates are higher.

An open winter adds greatly to the cost of getting out cedar, as well as shortening the supply.

Sterling & Son are handling a large number of long poles from Idaho, shipping them to their old customers in the large cities. They are always glad to meet prospective buyers at their home office at Monroe, Mich., and go with

them to their northern yards, or they will send their representatives to call on their customers. They make a specialty of large contracts, but give small buyers as good stock as they furnish any one, and make shipment with as much promptness. If the buyers prefer they can send their inspector to their large yard and inspect their own poles.

We give several views here of their yards, camps and way of loading. In a few instances, customers have complained of receiving broken poles and write Sterling & Son of finding them broken after having them unloaded. It is impossible for a broken pole to be loaded in the manner they load all their cars, as shown by the picture. The poles are hauled to the car, a pair of tongs attached to a rope running up through the blocks on the gin pole, is attached to the pole where it will balance in hoisting and is then hauled up over the three loaders' heads in the car, who stick their picks into the poles to guide it into place when it is slowly lowered onto the car. A broken pole would endanger the loaders' lives, and they would not attempt loading one. Poles are usually broken by customers in unloading; they cut the stakes and let the load fall, and, under the very heavy weight, some poles must break. If they would use ropes, fastening the end to the bottom of the car on side the load is to be dumped, then pass the two ropes up over the load on each end of car, take a turn on the car stake opposite side of dumping and run down to men to hold, the load can be let down carefully and no poles broken.

CHICAGO TELEPHONE SUPPLY COMPANY REMOVAL.

The Chicago Telephone Supply Company will remove its factory and general offices to Elkhart, Indiana, about September 1. The company has outgrown its present quarters and found it necessary to secure a factory of sufficient size to enable it to handle promptly its very large business. In speaking of the company's moving to Elkhart President Briggs said: We are building a modern telephone factory, which will be completed about the first of September. The building has been especially designed for this class of work and is being fitted up with every modern appliance. A complete line of automatic machinery is being installed, which will enable us to manufacture from the raw material everything in our complete line of telephone apparatus. The high rents and crowded condition of a Chicago factory prohibited our making all parts of our product, and the fact that we were compelled to enlarge our quarters ten different times since we started manufacturing proved to us that the only way in which we could handle our business was to build a factory of our own, where we would have unlimited space in which to manufacture. Elkhart, he continued, is an ideal place. It has a belt line railroad which punctures every railroad leading out of Chicago, and thus insures as low rates as from Chicago and prompter deliveries, as the shipments do not have to pass through the congested freight houses of Chicago, and will enable us to ship promptly to all parts of the country. This railroad runs a switch to our factory, allowing us to load direct to the cars, insuring careful handling and avoiding drayage. We will also have the benefit of Independent toll line connections with Indiana and surrounding states. The fact that "Chicago Telephones Satisfy" has made it imperative that we secure a commodious factory and our new plant at Elkhart will be one of the most complete of its kind in the United States.

A STREET TELEPHONE.

The Southern New England Telephone Company, working under a franchise granted by the city of Bridgeport, Conn., a short time ago placed in operation the first street telephone. The instrument works on the nickel-in-the-slot plan, and was described in the issue of Electricity March 26 of the present year. It is opened by the insertion of a coin, which is returned to the user upon the opening of the door, thus guaranteeing him that there will be no expense unless he secures the desired connection. Police calls and fire alarm messages will be transmitted free.

THE D. M. FULMER LUMBER COMPANY.

The D. M. Fulmer Lumber Company, of Florence, Wis., was incorporated January 2, 1898, with the following officers: D. M. Fulmer, president; J. M. Fulmer, vice-president, and J. R. Hayes, secretary and treasurer. D. M. Fulmer, president of this company, was born in Pennsylvania, but was reared in Wisconsin, and has been connected with the lumber and cedar business for twenty-five years. Twelve years previous to going to Florence he conducted business at Oil City and at Wausau, Wisconsin. At Oil City he owned the Oil City Roller Mills and in connection with this a lumber business. In the fall of 1892 he built a mill on the Eau Claire river, near Wausau, Wisconsin. This mill being destroyed by fire, Mr. Fulmer decided

D. M. FULMER.

J. W. FULMER.

CEDAR CAMP, THE D. M. FULMER LUMBER COMPANY.

to go where he could get more timber and moved to Florence in January, 1895, and formed the D. M. Fulmer Lumber Company, which was afterwards incorporated. D. M. Fulmer has charge of the business at the home office, while his son, J. W. Fulmer, looks after the company's interests at the mills and woods, including the inspection and loading of poles and lumber. Mr. J. W. Fulmer is a young man twenty-two years old and one of the young hustlers of Northern Wisconsin. Mr. J. R. Hayes, secretary of the company, is an ex-railroad man, who has charge of the office work and freight line of their large business. This company entered into the cedar pole business four years ago and from a small beginning it has worked up a business second to none in the Upper Peninsula. The company owns large tracts of timberland and extensive pole yards at Florence and Buskirk, Wis., and Wellington, Michigan. All the poles that are tributary to Florence are concentrated there, and they always have a large stock on hand at the company's yard, from which can be shipped poles from twenty feet four inches to sixty feet seven inches. The company handles seventy-five per cent of all the poles produced between Iron Mountain, Michigan, and Hurley, Wisconsin. During the month of June it had loading crews at Commonwealth, Florence, Wis., Iron River, and Choate, Mich., also at its yards in Wellington and Buskirk, loading poles from a large territory and shipping into all the surrounding states.

Mr. D. M. Fulmer is known over the Upper Peninsula as the "Cedar King." The company's interest lies in the heart of the white cedar country, where all poles possible are shipped from the stump to the line, cutting down handling and freight expenses. The company have built a new shingle mill at Wellington and are now putting a sawmill at same place, its motto being "Good stock and right prices and fair treatment to all customers."

TRADE NOTES.

MR. C. K. HILL, Pittsburg, Pa., dealer in electrical supplies, has recently moved into new and larger quarters.

THE CROCKER-WHEELER COMPANY, Ampere, N. J., has issued a neat pamphlet containing descriptions and sizes of small power motors.

THE OSBURN FLEXIBLE CONDUIT COMPANY, 21 Park Row, New York, is erecting an addition to its manufacturing plant at Hoboken, N. J.

THE SUMTER TELEPHONE MANUFACTURING COMPANY, Sumter, S. C., has recently issued "Bulletin No. 28," which will be mailed free upon request.

VALLEE BROTHERS ELECTRICAL COMPANY, Philadelphia, Pa., is about to issue new catalogues, one of which will be devoted to telephone apparatus and another to electrical house goods.

THE VARLEY DUPLEX MAGNET COMPANY has opened a New York office at 26 Cortlandt street. Mr. J. M. Knox, the firm's former western agent and engineer, has taken up its work in this branch office.

THE WARNER ELECTRIC COMPANY, Muncie, Ind., is now fitting all of its switchboard battery generators for selective signaling, producing positive and negative pulsating current. No extra charge is made for this addition.

THE WILLARD STORAGE BATTERY COMPANY, Cleveland, Ohio, is now operating the factory which has been conducted under the name of Sipe & Sigler in the past two years, for the manufacture of the Willard storage battery.

THE AMERICAN CONDUIT MANUFACTURING COMPANY, New Kensington, Pa., reports a decided growth in the sales of the "American" electric wire conduits. This company also manufactures couplings, elbows, etc., etc., as used in electric wire construction work. These products are enameled both inside and outside and are accepted with approval by many of the leading electrical engineers.

THE MONARCH FIRE APPLIANCE COMPANY, New York, has been awarded the gold medal at the South Carolina, Interstate and West Indian Exposition for "Kilfyre." It is said that this is the only medal awarded to any fire extinguisher.

THE KELLOGG SWITCHBOARD AND SUPPLY COMPANY, Chicago, Ill., is distributing an interesting postal folder entitled "What's Wanted." This shows in half-tone and diagram a standard subscriber's instrument, a "cut-in" station and a circuit.

JOHNSTON & DEAN have removed their offices to 113 Pine street, St. Louis, Mo., and now have offices and stock room at the one location. The specialities manufactured by this company are meeting with wide favor among the Independent telephone buyers.

THE NEW HAVEN NOVELTY MACHINE COMPANY, New Haven, Conn., is sending the telephone companies its latest catalogue of "Telephone Novelties," some of which are of pertinent interest to exchange managers. The catalogue will be sent post paid upon request.

THE CONTROLLER COMPANY OF AMERICA, Winner building, St. Louis, Mo., has just issued a very attractive booklet on "The Coin Controller." This booklet should be carefully read by telephone exchange managers, as it contains a great deal of interest. It will be mailed upon request.

THE ATWOOD-KENT MANUFACTURING COMPANY, 116 North Seventh street, Philadelphia, is offering a new type of interior telphone known as the "Monoplex." This instrument is installed on the one-wire system and is recommended for hotels, factories and general interconnection service.

THE NORTH ELECTRIC COMPANY, Cleveland, Ohio, has recently issued one of the finest booklets published by any telephone manufacturing concern. It is called "Unit-type Switchboard," and is profusely illustrated. The book will be sent free to any one upon request, provided this publication is mentioned.

THE READY TELEPHONE RECEIVER COMPANY, 24 Park Place, New York, has issued a circular on the "Ready Telephone Receiver." In the circular is reproduced clipping from the New York Herald which makes interesting reading. The company will send descriptive matter upon request.

MR. G. M. WILLIS has opened offices in the Monadnock Block, suite 1503, as manufacturers' agent and engineer. Mr. Willis was identified with the Jewell Electrical Instrument Company, of Chicago, for several years, and is familiar with the electrical industry both from a commercial and technical standpoint.

THE SUMTER TELEPHONE MANUFACTURING COMPANY, Sumter, S. C., has been awarded the highest honors at the South Carolina Interstate and West Indian Exposition. Gold medals were awarded the company covering switchboard appliances, telephone instruments, generators, transmitters and receivers.

THE HUBBS-NEER ELECTRICAL MANUFACTURING COMPANY, Butler, Ohio, is having large sales of its "Electra" Soldering Paste. Any one in the market for soldering paste will be well paid if they will send their name and address to this company for samples and prices. Low prices and high qualities are exceptional features.

LINDSLEY BROTHERS COMPANY, Menominee, Mich., has decided to move its main office to Chicago, and is now located in commodious offices at 536 Tribune Building. Mr. G. L. Lindsley, president of the company, will be permanently located here so as to be near the center of the telephone trade. This company has twelve pole yards

in Wisconsin and Michigan and five in Idaho and is in condition to furnish high grade, live peeled poles in large quantities from any of its yards. Mr. Lindsley is a pioneer in the cedar industry.

THE ELECTRICAL PUBLISHING COMPANY, Chicago, has issued the June number of Sound Waves, which contains much interesting reading for telephone men. The subscription price of the publication is fifty cents per year, but the publisher announces that sample copies will be sent free upon request providing this journal is mentioned.

THE NATIONAL SELF WINDING CLOCK COMPANY, Bristol, Conn., is sending out a handsome booklet entitled "The Clock that Winds Itself." This booklet is fully illustrated and explains a clock system in connection with telephone exchange operation. The company invites correspondence and will gladly send the book upon request.

W. J. BARR, Cleveland, Ohio, manufacturer of telephone transmitter arms, reports a very heavy volume of business. The average sale per month of the "Barr" telephone arm has been in excess of nineteen thousand, and is steadily increasing. Mr. Barr issues a neat folder showing cuts of his different arms, which will be mailed free upon request.

THE AMERICAN CONSTRUCTION COMPANY, 803 Medinah Temple, Chicago, was recently organized to do general electrical and telephone construction business. The president and general manager of the company is Mr. R. H. Cakefair, well known in the telephone world and until recently superintendent of the Illinois Telephone Company's plant at Jacksonville, Illinois.

THE F. BISSELL COMPANY, 114 and 116 St. Clair St., Toledo, Ohio, has just received from the press its new catalogue No. 101, which is a very complete and artistic book. It is printed on heavy enamel stock with neat cover, and is filled with illustrations of the many appliances needed by the telephone buyer. This book will be sent free for the asking by mentioning TELEPHONY.

THE ILLINOIS ELECTRIC COMPANY, Chicago, has issued a telephone switchboard catalogue, some of the illustrations in which are brought out in colors, making one of the most complete and up-to-date catalogues of its kind extant. This catalogue covers a complete line of telephones, switchboards, telephone supplies and specialties, handled by the company, and will be sent post free upon request.

THE ACME ELECTRIC COMPANY, Chicago, has removed its offices from 231 South Canal street, to 194-200 South Clinton street. The company in its new factory will occupy about forty thousand square feet of floor space. and has installed a great deal of automatic machinery. This move was made necessary by the Acme's thriving business, being the fourth time the company has been compelled to enlarge its quarters in order to supply the demand for its complete line of telephone apparatus.

THE CHICAGO FUSE WIRE AND MANUFACTURING COMPANY, 358 Dearborn street, Chicago, and 853 Broadway, New York, is making a special offer to send its new "paper weight" free with any order received or for ten cents in stamps or currency to pay postage and packing. This paper weight is handsome and attractive and well worth having. The company will also send upon request its new illustrated price sheet, which is a complete and handy list from which to order fuses and blocks.

THE MALTBY LUMBER COMPANY, Bay City, Mich., made shipment recently of a full train load of cedar ties to Des Moines, Ia., also a train load of cedar poles to Arkansas points. The double train was kept intact throughout the run and through the courtesy of the different railroads over which it passed, was held up nights and moved during the day. It was quite an advertisement for the company, as large posters were pasted on each car. The Maltby Lumber company make a specialty of high grade cedar poles at lowest prices.

THE BAIRD MANUFACTURING COMPANY, Chicago, Ill., has for some time past been engaged in developing a rapid service single coin machine, also a rapid service meter for telephone lines, which promises to be completely successful. The company feeling the need of an expert in switchboard and line conditions has secured the services of Mr. David S. Hulfish, who prior to June first, was switchboard engineer of the Central Union Telephone Company. Mr. Hulfish assumes the office of secretary and electrical engineer and has made some marked improvements in the company's product.

THE AUTOMATIC TELEPHONE AND SUPPLY COMPANY, Oklahoma City, Oklahoma, has secured the exclusive right from the Globe Automatic Telephone Company, Chicago, to sell and install the Globe automatic telephone apparatus in Texas, Oklahoma and Indian Territory. It is said that this company is meeting with great success, and that many construction companies are being organized to engage in the business of installing the automatic exchanges and many telephone companies have adopted this system. The new company is installing a number of new plants in its territory and the outlook is promising for a very large business.

THE KELLOGG SWITCHBOARD AND SUPPLY COMPANY, Chicago, has recently closed a contract with the Northern Construction Company for a central energy multiple switchboard for Hamilton, Ohio, consisting of three, six panel, three position sections, having a total present equipment of 960 local common battery lines and twenty toll lines. Each section will contain multiple jacks for 960 lines, making the board full multiple. The ultimate capacity of the board is 3,000 multiple lines. Included in this contract is the main and intermediate distributing frames, power plant, 900 standard common battery wall telephones and one hundred desk sets complete.

THE STANDARD TELEPHONE AND ELECTRIC COMPANY, Madison, Wis., states that the recent orders for "Standard" apparatus have been heavy. Large orders for telephones have been booked for farmers' lines in Wisconsin, Minnesota, Iowa and West Virginia. The company has also booked a number of orders for July delivery for its new improved switchboard, with new type of combined self-restoring drop and jack, and ringing and listening key. The "Standard" "Y generators" and "Y ringers" are being made for the new types of apparatus now being improved and perfected. The Mexican export business of the "Standard" is steadily increasing over that of the early spring. A large shipment of telephones to South America will also be made shortly.

THE CLARK AUTOMATIC TELEPHONE SWITCHBOARD COMPANY, Providence, R. I., held the annual meeting of its stockholders on June 17th, and the following officers were elected: Hon. E. L. Freeman, president; Mr. J. W. Phillips, vice-president; Mr. A. S. Clark, secretary; Mr. M. E. Torrey, treasurer; and Mr. J. L. Putnam, manager The following were elected directors for the ensuing year: Hon E. L. Freeman, Mr. J. W. Phillips, Mr. A. S. Clark, Mr. M. E. Torrey, Mr. E. M. Prindle, Mr W. H. Herrick, Mr. W. S. Ballou, Mr. G. H. Smith, Mr. J. H. Preston, Mr. A. E. Farwell, Judge A. Van Wagenen and Mr. J. L. Putnam. The Clark company now has established agencies in all the leading cities in the United States, Hawaii, Europe, South Africa, Australia and Mexico. Recent sales include the International Paper Company, Wilder, Vt., The National Cash Register Company, Boston, Mass., Canada Sugar Refining Company, Montreal, United States Trust Company, Boston, Mass., the towns of Larchwood and Doon, Iowa, Messrs. Gerteiz Hermanos, Yermo & Company, Gijon, Spain, and the East Haven Telephone & Electric Company, East Haven, Conn.

The Saratoga Telephone Company's New System.

While there has been a constant rapid development and changing in telephone equipment and construction since the opening of the Independent telephone business, and it would seem that the field of new ideas had been long exhausted, yet the plant recently installed by the Saratoga Telephone and Telegraph Company, Saratoga, N. Y., embodies probably more new features, that are of importance to the durability as well as the efficiency of a telephone system, than has ever been brought out in any system at any one time.

The exchange was constructed by the Eastern Electrical Construction Company, of Philadelphia, one of the able management of Mr. Edward Davis, president, and the careful financiering of Mr. E. M. Yarnall, treasurer, they have successfully built and turned over many of the largest exchanges and toll line properties throughout the Atlantic states. These plants are built under the direction of W. C. Scarlett, supervising engineer, one of the most practical, experienced telephone engineers in the field.

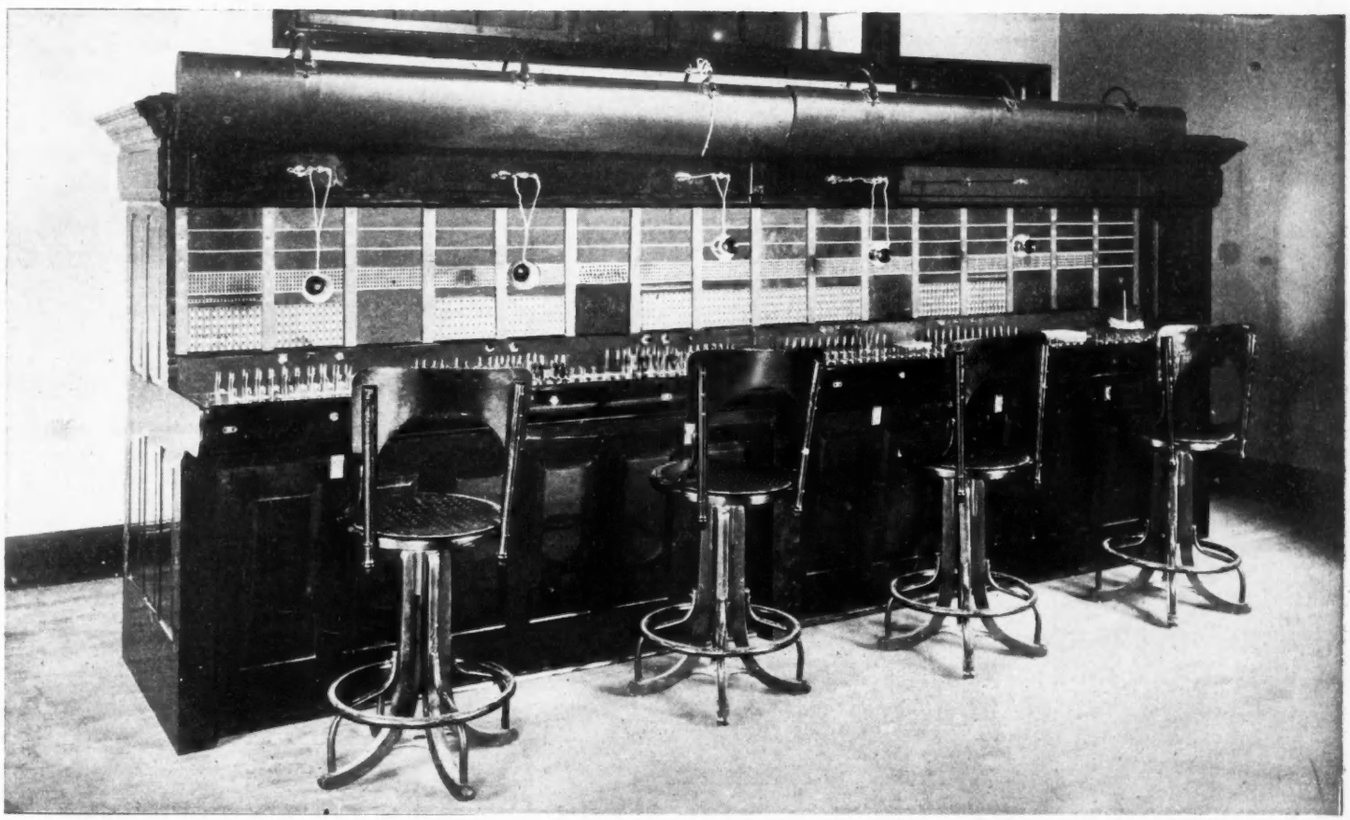


FIG. 1. MAIN SWITCHBOARD, SARATOGA TELEPHONE EXCHANGE.

The plant at Saratoga was laid out to provide for the present requirements, and also with a view of providing for the enormous increase probable in such a rapidly growing and world-wide summer resort.

The main switchboard (as shown in Fig. 1) is a full central energy lamp signal multiple board with double supervisory clearing out lamps. It is built with a frame capacity for 2,400 lines with a present equipment of 500 subscribers' lines. The frames are built with eight panels to the section, and arranged for three operators' positions. They are constructed of angle iron and are well braced to make them strong and rigid.

The sections are so made that when two or more are joined they have the appearance of one solid frame. The front and side of the board, excepting the space for the jacks and signals, are covered with highly polished dark finish, solid mahogany cabinet work. The back of each section is provided with a dust-proof roller curtain, made of heavy canvas and covered with dark red felt.

The plug board is covered with mahogany stained leather belting. The plugs, one of which is shown in Fig. 2, is a two way or metallic plug. It is of small, neat construction, but each part of sufficient strength to make it strong and durable. The polished hard rubber sleeve or handle is mounted so as to avoid the use of the binding screw passing through it. It is put on loose and held in position by a brass collar screwed on from in front, thus leaving the handle free to turn when the operator inserts the plug, and avoids twisting and breaking the cord conductors.

The supervisory lamps are placed into a fibre tube, which is provided at its top with a collared setting, holding the opalescent jewel. The glass jewel is protected from impact by the plugs by an arched wire protector fastened to the collar of the setting. This arched wire also serves as a handle, so the tube with lamp may be readily removed and replaced at any time from the top of the board. This form of construction leaves the jewel flush with the top of the board, and absolutely avoids any accumulation of dust in these parts. The bottom of the lamp holding tube is slotted to form a guide and leave openings for the lamp jack contact points.

At the top, in front of each section, is mounted an Acme trough reflector with incandescent lamps. These reflectors are adjusted so that the light may be thrown properly on the front of the board.

The key shelves are made of five layers of wood, two layers with their grain running crosswise, and the remaining three lengthwise. The shelves are hinged so that they may be raised for inspecting and testing the keys and wiring. The key shelves are provided with a spring lock for

fastening, and are opened with a key. The plugs and double supervisory clearing out lamps are mounted on a mahogany stained leather covered board, back of the key shelves.

The keys are mounted on the key shelf with all of their contact points toward the front (as shown in Fig. 3), and one key cable connects all the terminals along the bottom, so when the shelf is raised the working parts may be readily inspected. In each position is also placed a pair of circuit

FIG. 2. PLUG SARATOGA EXCHANGE.

changing keys for four party selective ringing line use, for which the entire board is equipped.

In the front of the trough, of the board, under the key shelf, in each position, is mounted a pair of spring jacks for operator's receiver connecting jacks. The answering jacks (as shown in Fig. 4) and the lamp line signals (Fig.

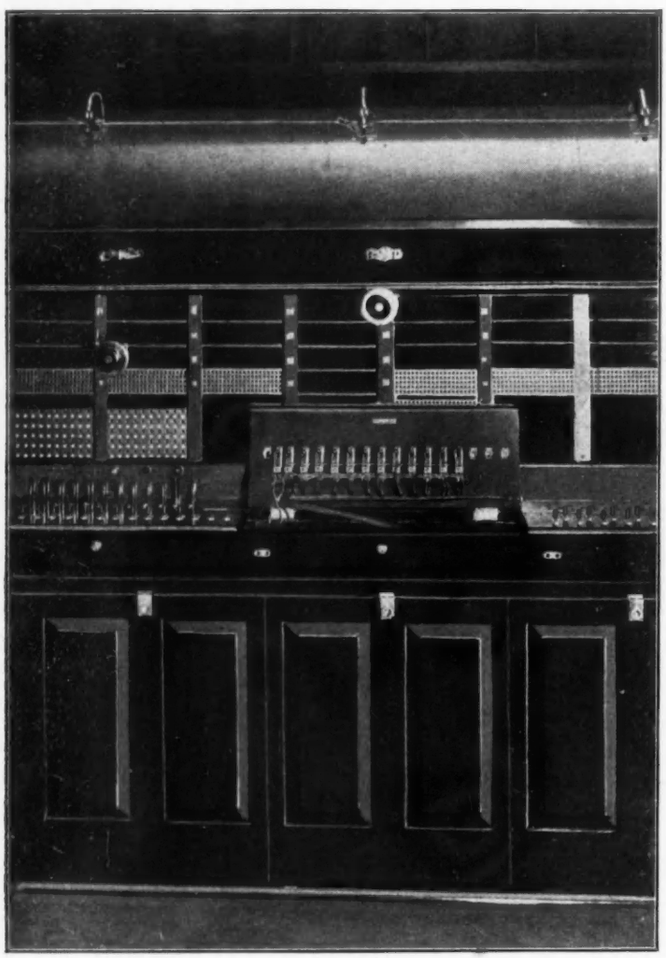


FIG. 3. KEY SHELF, SARATOGA EXCHANGE.

5) are placed alternately in strips of ten, with one hundred to the position. They are arranged in columns of five strips or one hundred signals to two panels, leaving one vacant panel between each operator, in each section. The multiple jacks (shown in Fig. 6) are duplicated in every six panels, thus greatly reducing the space necessary for an operator to reach in making a connection. Each one hundred multiples in a panel are separated by a white holly strip, and are blocked by a white line in four columns of five jacks to the bank. The banks of jacks and signals are set into the panels and firmly clamped to the iron frame, in front, by a toggle screw under the stile strip. Any one bank may be readily removed without entirely taking out the binding screw. The stile strips are easily removed and replaced.

The base of the bank of jacks and signals, by which each end is clamped to the iron frame, is of one piece of

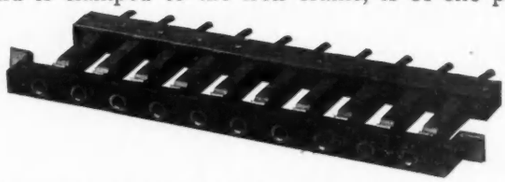


FIG 4. ANSWERING JACKS, SARATOGA EXCHANGE.

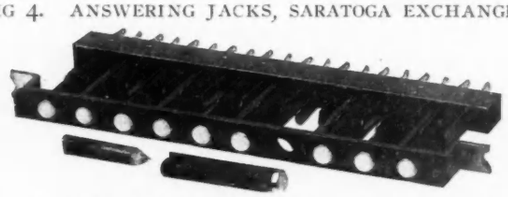


FIG 5. LAMP LINE SIGNALS, SARATOGA EXCHANGE.

FIG. 6. MULTIPLE JACKS, SARATOGA EXCHANGE.

one-eighth inch brass, properly formed and extended through the entire front piece of the strip. In the jacks this bar base is provided with holes of sufficient size to receive a hard rubber bushing, with its inner diameter of the same size as the holes in the front and back hard rubber strip through which are placed the jack ferrules. The ferrules

FIG. 7 TOLL BOARD, SARATOGA EXCHANGE.

are screwed into the bottom connecting spring, firmly holding the springs, and clamping the three parts of the front piece.

The transmitters are mounted on a nickel plated brass octagon shaped adjustable arm provided in front with nickel plated cord pulleys set in oxidized hangings. The arm passes through an oxidized plate, which plate also

forms an escutcheon on each side of the transmitter cords. The arm is guided and held in place by an angle arm fastened in the rear of the board.

Each operator's position is provided with three pilot lamps, mounted in the mahogany stained leather covered panel back of the plug board. One lamp is to indicate when a call is received, one when a disconnect signal is given, and one when an operator rings a subscriber.

The toll line switchboard (shown in Fig. 7) is a twenty line combination toll line board and chief operator's desk. It is a dark mahogany cabinet fully equipped with the proper connecting appliances and twenty toll line equipments, together with the necessary apparatus for supervising the main exchange.

All line relays, cord relays and operator's set relays are mounted on the relay rack. In the back of the switchboard, no relays, condensors or coils of any kind can be seen. All like apparatus is placed together at all times.

Fig. 8 shows the complete power plant for the exchange. The battery plant consists of a set of chloride accumulators with cells of lead lined wooden tanks. The battery rack is constructed of heavy angle and channel iron, well braced to make it strong and rigid. The batteries are set on shelves of heavy slate slabs, supported on the angle iron cross bars of the rack.

The power switchboard shown immediately in the rear of the battery rack is constructed of heavy marble slab, containing the switches and instruments, and mounted on a stand of heavy angle iron all suitably braced.

On the center of the board are mounted the necessary knife switches for controlling the entire system.

At the bottom of the power board are mounted the necessary bus bars and D. & W. lightning arrestors. Immediately above the bus bars, in the center, are mounted the rheostats, which are provided, on the face of the board with a small hand wheel and dial plate similar to that on the volt meter switch.

All metal parts on the face of the power board are copper plated, highly polished. The power equipment consists of a two H. P. Wagner motor, directly connected to a two H. P. Roth charging dynamo, for the charging set. For the ringing set is furnished one Roth combination generator and ½ H. P. Wagner motor. The combination generator may be operated from the motor or from the storage battery set. The power machine tables are constructed of heavy angle iron and channel iron, strongly braced, on which is mounted a heavy wood frame supporting the base of the machines on heavy rubber balls.

Fig. 9 shows the combination main and intermediate rack with heat coil protectors.

The desk telephone (shown in fig. 10) is constructed with all of its metal parts of heavily nickel-plated, highly polished brass. The switch is mounted in the head of the pedestal, with all of its contact springs, for both sides of the circuit, mounted in hard rubber, perfectly insulating the circuit from the pedestal and the hook, and avoiding the use of any of the exposed metal parts for any part of the circuit at any time.

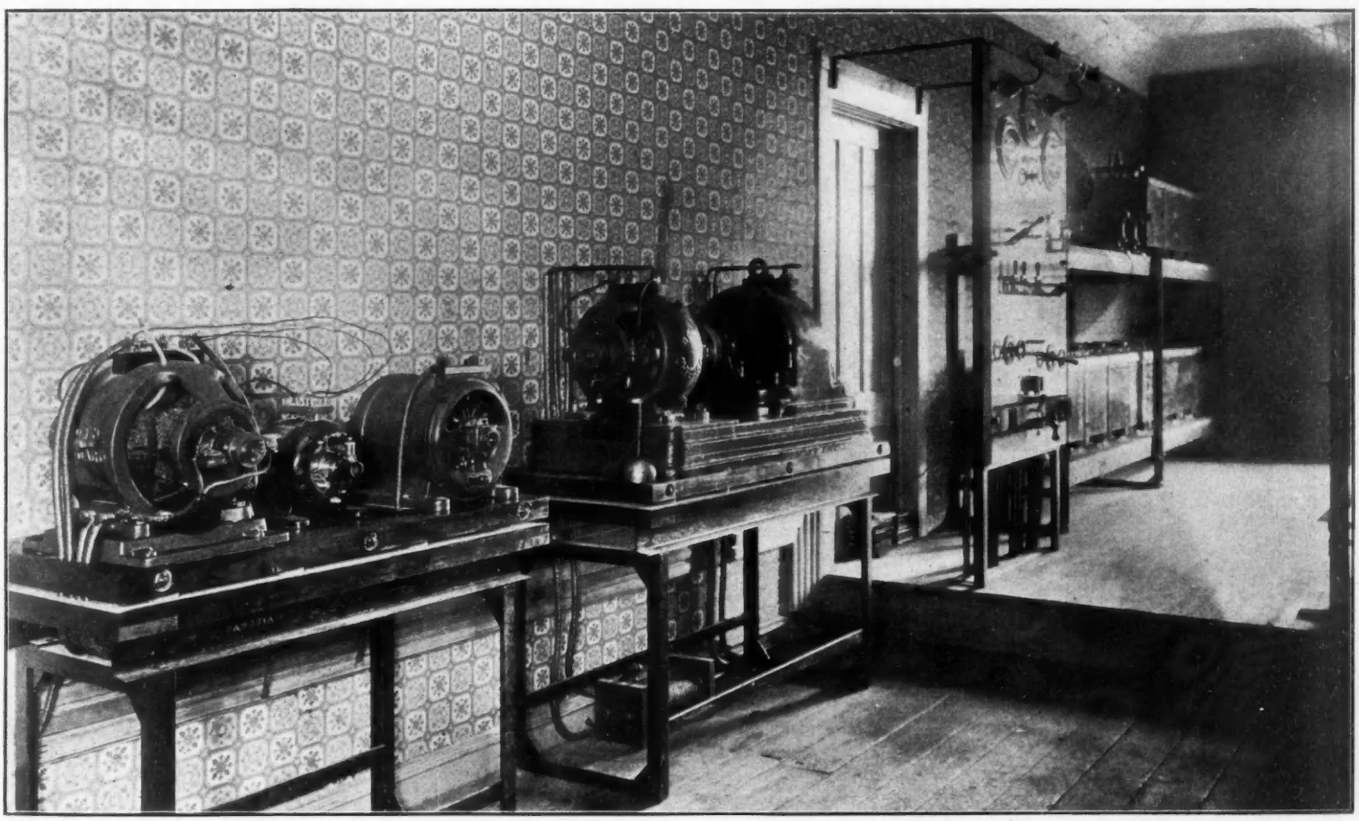


FIG 8. POWER PLANT, SARATOGA EXCHANGE.

The contact springs are of best German silver and are provided with platinum contacts. The springs and contacts are so arranged that they form a positive sliding connection at all times. The hook restoring spring of heavy German silver sheet is formed to pass around the pedestal on two sides. This construction gives a double spring and furnishes a restorer of three inches in length, making a very live and durable switch, and avoiding the use of a small spiral spring under the switchhook. The switch springs and the restoring springs are covered with a brass tube cap to completely conceal the working parts, together with all connecting cords and wires. The pedestal is provided with an adjustable head for the transmitter, so it may be raised up and down. This adjustable head is provided with a concealed stop for allowing its adjustment the proper distance only. The transmitter cords taken directly from the front

and back electrodes, pass through the head and through the pedestal into the base and terminate in properly mounted binding posts. The induction coil is mounted on a neatly constructed heavily japanned base. The cord terminals are supported on a fibre insulated bar mounted on the induction coil base.

The wall instrument (shown in fig. 11) is constructed with the usual back board and shelf. The induction coil is mounted in the base of the arm. The coil box is provided with a false bottom to which it is hinged and locked. The false bottom is permanently fastened to the back board,

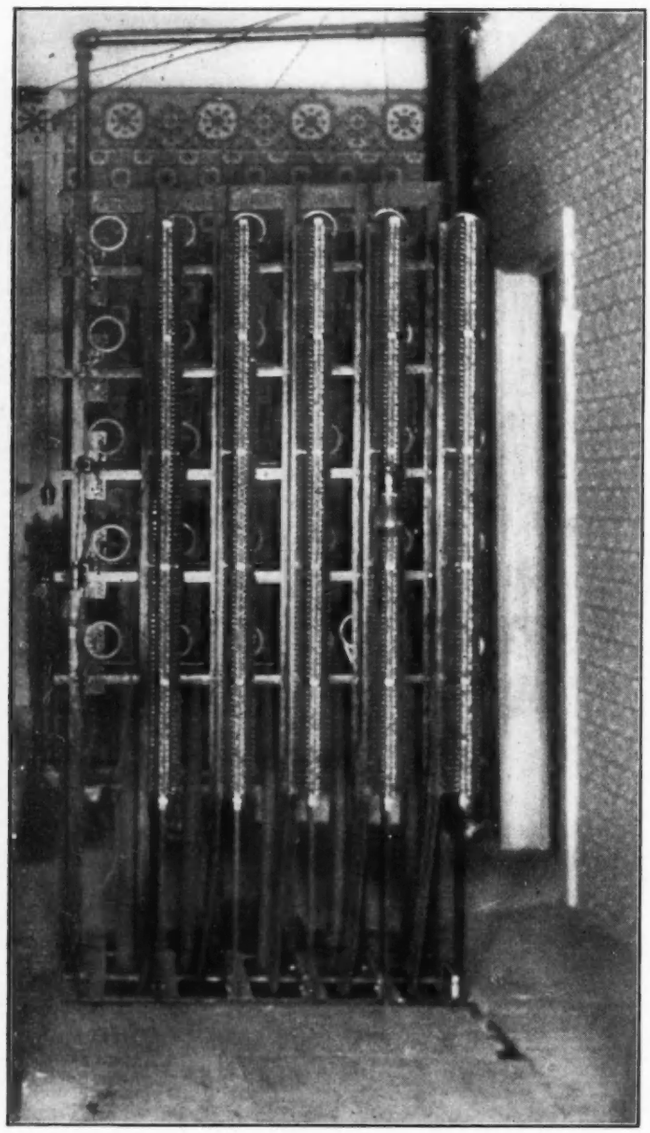


FIG. 9. DISTRIBUTING RACK AND PROTECTORS, SARATOGA EXCHANGE.

and can be conveniently opened for inspecting and testing the working parts.

The switchhook (shown in fig. 12) is claimed to be one of the most scientifically designed, neatly and substantially constructed telephone switches ever invented. It has a restoring spring of over five inches in length made of heavy spring German silver. The switch has no rubbing or sliding parts, except at the platinum contact points, which form a good positive connection. The springs are all of best German silver and are firmly clamped in a hard rubber block, insulated from the binding plate by mica. All parts are self-contained in a heavy nickel-plated cast brass standard, making it one of the strongest switches on the market, and convenient for mounting in other makes of telephones.

All wire terminals and connecting wires, of the telephone, are mounted in the coil box, fully concealed when

FIG. 10. DESK TELEPHONE, SARATOGA EXCHANGE.

the box is closed. On the instrument, as well as on the desk set, there are no exposed metal parts, binding posts, screws or connecting wires that form any part of the circuit at any time.

With the large number of patent claims that have been allowed to the International Telephone Manufacturing Company, on the construction of the improved parts, and with their adopted policy of using nothing but the best of material obtainable in the construction of

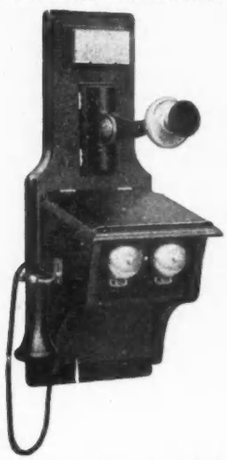


FIG. 11. WALL INSTRUMENT, SARATOGA EXCHANGE.

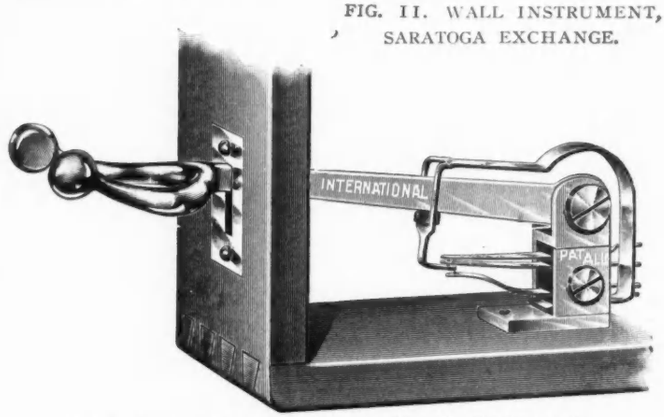


FIG. 12. SWITCH-HOOK, SARATOGA EXCHANGE.

the equipment, and made with the highest class of skilled workmanship throughout, has placed this company among the leading manufacturers in the independent telephone field, and has given Saratoga one of the most modern and up-to-date telephone systems extant.

Wisconsin Independent Telephone Convention.

The summer meeting of the Wisconsin Independent Telephone Association was held jointly with the Northwestern Electrical Association at Waupaca, Wis., on June 25, 26 and 27. The meeting was called to order by President Valentine at 3 p. m. on the 25th.

Mr. J. H. Montague, of the Ericsson Telephone Company, spoke of the practicability and efficiency of using the same line for telegraph and telephonic work, and offered to demonstrate the correctness of his position.

Mr. L. W. Burch, of Madison, called the attention of the association to the advisability of adopting some kind of an attractive trade-mark or sign for the use of independent toll lines.

The President—It seems to me that the local companies do not advertise sufficiently and that for that reason it is frequently difficult for a would-be user to locate the telephone.

Mr. Burch—The local companies ought to be more up to date in many respects. A model company is that organized in Orfordville. There are about sixty-seven subscribers, including forty farmers. It raised all the money in advance and has a first-class equipment in every respect.

Mr. A. W. Bryant—Some of the exchanges in Indiana are worthy of imitation. The plan there is to have the farmers buy the telephones, while the company builds the line and charges a rental of $1.25 per mile per annum for its use.

Mr. A. J. Perkins, of Medford, Wis.—We have an automatic telephone exchange in Medford, called the National Automatic Telephone, which will be running two years the coming August. It is patterned after the plant in Odell, Ill. Each subscriber has a switch of his own. The advantages of the system are its secrecy, quickness, reliability and cheapness. The automatic system is all right, although you cannot connect it automatically with a toll line.

Mr. Bryant—The National Automatic people at one time had a system for connecting a toll line with their automatic system, which apparently worked all right.

Mr. Burch—I would like to enquire the cost of maintenance of your automatic system.

Mr. Perkins—It costs about two per cent of the income to keep up the line. We think the system is the finest thing for a small town that was ever devised.

The Mount Vernon Independent Telephone Company and the Dane County Rural Telephone Company were admitted to membership in the association.

After some further discussion adjournment was taken until the following day.

The second session of the telephone convention was called to order at 11 a. m., Thursday, June 26.

Mr. H. C. Winter read an able paper on "Toll Rates and Toll Divisions."

Mr. Slater, chairman of the Committee on Toll Rates, reported as follows:

Your committee wishes to recommend the following report for adoption:

Taking each station as a center, radii are to be obtained by drawing circles of different diameters; that is, take any station that is doing toll business, and you draw a circle from that as a center, and each circle represents a different rate.

WISCONSIN INDEPENDENT TELEPHONE CONVENTION, WAUPACA, WIS.

The first circle is to be seven miles in radius, and the rate, 10 cents; 7 to 15 miles, 15 cents; 15 to 24, 20 cents; 24 to 32, 25 cents; 32 to 46, 30 cents; 40 to 48, 35 cents; 48 to 56, 40 cents, etc.

Where a station lies within two miles of a zone it may take the rate of either zone; that is, if the zone is within two miles of the circumference, it is optional with the company whether it charges for the second zone or the first one.

It being optional with the company in the division of combination toll rates, air-line distances shall be the method of measuring toll lines from originating stations to switching and receiving points. Originating exchange stations shall receive twenty-five per cent of the toll rate; originating toll stations, fifteen per cent of the tolls.

In exchange switching or terminating a message shall be allowed a credit of five miles of its toll lines in the division of its tolls.

The system is practically the system recommended in the paper just read.

On motion of Mr. Hutchinson it was voted as follows:

That the present committee, including the absent mem-

bers, be continued until the next annual meeting, and have its powers enlarged so that it may take up the question of the arrangement of special rates where necessary, and also that the report of the committee just made be adopted.

That the secretary be instructed to have this report as adopted printed and copies sent to each company of the association, and also each other company in the state, and that the rates adopted in this report go into effect on August 1, and that immediate notice thereof be given by the secretary to every company in the state.

Mr. Hutchinson then presented a paper on the subject of "The Telephone Clearing House."

After considerable discussion on this paper, in which sentiment varied, it was moved by Mr. Kepler that a night rate be adopted with no rate less than ten cents and a half rate for all messages over that with an additional amount to make it divisible by five if necessary, time to be from 6 p. m. to 6 a. m. This was carried unanimously.

Resolutions were then passed unanimously: That the thanks of the association be tendered to the Waupaca Electric Railway and Light Company for the many courtesies received by the association, after which the convention adjourned.

Those in attendance were: C. A. Kullman, Chicago; W. W. Geisse, Chicago, M. B. Kitt, Minneapolis; J. B. McMullin, Chicago; George C. Bailey, Chicago; A. Meinema, representing M. B. Austin & Co.; R. F. Kountz, Neilsville, Wis.; Thomas Ferris, wife and daughter, Milwaukee; F. J. Alderson, New York; H. S. Connor, Shelby, Ohio; R. Valentine, Janesville, Wis.; H. D. Goodwin and wife, Milwaukee, Wis.; Charles Cuno, wife and son, Oconomowoc; Charles Schenneker, Sun Prairie; H. C. Winter, Madison; W. W. Smyth, Jr., Chicago; W. W. Low, Chicago; Thomas Greer, Chicago; L. K. Cushing, Chicago; W. D. Packard, Warren, Ohio; H. J. Way, Chicago; William Smith, Chicago; V. W. Bergenthal, Chicago; L. W. Burch, Madison; C. L. Currie, Jr., Chicago; W. N. Matthews, St. Louis; J. H. Montague, Chicago; C. L. Hibbard, Chicago; S. A. Dinsmore and wife, Chicago; George Cutter and wife, Chicago; A. Smith and wife and sister-in-law, Milwaukee; Charles Messer, Chicago; O. B. Williams, Whitewater, Wis.; A. J. Perkins, Medford, Wis.; W. R. Pinchard and wife, Chicago; George W. Conover and wife, Chicago; James Wolff, Chicago; C. A. Kenworthy, Chicago; Otto E. Osthoff, Chicago; J. Scribner, Chicago; W. H. Colman, Chicago; D. T.Wallace, Chicago; A.W. Bryant, Chicago; C. Knight, Chicago; J. C. Schmidtbauer, Milwaukee; R. B. Abbott, Chicago; W. H. Slingluff, Chicago; J. R. Cravath, Chicago; W. P. Upham, Chicago; J. B. Darragh, Chicago; Harold Almert, Oak Park, Ill.; S. F. Dibble, Chicago; A. L. Hutchinson, Weyauwega, Wis.; H. E. Kepler, Sun Prairie, Wis.; H. G. Slater, Waupaca; E. A. Forbs, Rhinelander; John Rice, Chicago; G. L. Ainsworth, Chicago; John Schnabel, Grand Rapids, Wis.; P. L. Huntley, Grand Rapids; W. F. Collins, Chicago; George Conover, Chicago; Charles Messer of Dearborn Drug and Chemical Company, Chicago; Charles Ffrench, Chicago, Electrical Review; ex-Governor W. H. Upham, Marshfield; Frank J. Quinn, Madison; James B. Coal, Minneapolis; Harry Byrne and wife, Milwaukee; M. B. Austin and wife, Chicago; C. W. Welkens, Cleveland; A. O. Kuehmsted, Chicago; J. C. Finch,. Chicago; W. D. Kurtz, Appleton; G. B. Foster, Chicago; W. P. Hyland, Fond du Lac; D. M. Fulmer, Florence; H. F. Hamacek, Sturgeon Bay.

One hundred thousand dollars is being spent in the construction of a tunnel for telephone wires between Minneapolis and St. Paul, Minn. The object of the tunnel is to protect interurban service from interruption by storms and to increase the capacity for communication between the two cities.

NEW TELEPHONE ASSOCIATION.

The independent telephone interests of Minnesota are now organized for mutual protection and benefit and more aggressive operation. The representatives of these telephone interests have named the organization the Minnesota Independent Telephone Association. The officers chosen are as follows:

President, Dr. J. H. James of Mankato; First Vice-President, Congressman James A. Tawney of Winona; Second Vice-President, J. J. Greaves of Glencoe; Third Vice-President, E. L. Bradley of Duluth; Secretary, W. Howard Mears of West Concord; Treasurer, Joseph Lockey of St. Paul; Executive Committee, Dr. J. H. James, J. A. Tawney, J. J. Greaves, E. L. Bradley, W. Howard Mears, E. E. Webster, E. H. Moulton and C. H. Judson of the Twin City Telephone Company, Minneapolis; F. M. Buck and J. W. Lockey of St. Paul; H. A. Patterson of Mankato; C. C. Kritzer of Duluth; W. S. Clay of Hutchinson, and C. J. Smallwood.

It will be seen that Congressman Tawney is an officer. The Twin City Telephone Company is very well represented among the officers of the association.

H. M. Scovell of the Goodhue County Telephone Company, who was one of the most active men in the convention, makes the very important admission that it was the purpose of the various members of the organization to so enlarge their lines as to give the association a complete network throughout Minnesota. Connections between the systems are to be made everywhere. This means that no matter what the form of the organization its purpose is a fight with the Bell interests. In this fight the association will have more miles of wire than any other of the many similar state organizations in the country, with the exception of those in Indiana and Illinois.

THE TELEPHONE BURGLAR AND FIRE ALARM COMPANY, Rochester, N. Y., has issued a booklet on "Protection." The booklet treats of Telephone Burglar Alarms, which is something new in the Independent field. Those writing for the booklet should ask for blue prints of circuit and full information will be sent by the company upon request.

THE MONARCH FIRE APPLIANCE COMPANY has removed its general offices from 27 Williams street to 247-9 Pearl street, New York, where it will be in better position to handle its steadily increasing business. In the new building the company will have its business, manufacturing and shipping departments all under one roof. The company manufactures "KILFYRE," a product which is now universally known.

THE SCRANTON FIRE BRICK AND CONDUIT COMPANY, with factories at Scranton, Pa., and Itahaca, N. Y., is placing on the market a vitrified conduit for electrical underground construction work. The conduit is claimed to be indestructible, of unusual excellence in insulation qualities and unaffected by chemical action. The company announces that it is not in a "trust." Its general sales agent is Mr. C. J. Harrington, 14 Cortlandt street, New York.

THE AMERICAN HARDWOOD MANUFACTURING COMPANY, Grottoes, Va., has found it necessary to open an office at 90 Broadway, New York, to look after its eastern business. The company has secured the services of Mr. Ernest U. Kinsey, as eastern manager, who will devote his entire time to the trade in the territory above named. Mr. Kinsey is a thoroughly practical man and has devoted years to the manufacture and selling of wood-work. The American Hardwood Manufacturing Company is the oldest and one of the largest manufacturers of telephone wood-work in the United States. The fact that its product finds ready sale is a sufficient guarantee that it is of the highest standard.